



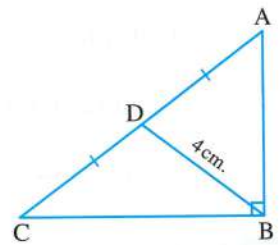
Answer the following questions :

1 Choose the correct answer :

1 In the opposite figure :

AC = cm.

- (a) 4 (b) 6
(c) 8 (d) 2



2 If $\triangle ABC$ is right-angled at A and $AB = AC$, then $m(\angle B) = \dots\dots\dots$

- (a) 30° (b) 45° (c) 60° (d) 90°

3 In $\triangle ABC$, if $AB = 6$ cm. , $AC = 7$ cm. , then $BC \in \dots\dots\dots$

- (a) $]6, 13]$ (b) $[6, 7]$ (c) $]1, 13[$ (d) $[1, 7[$

4 In $\triangle XYZ$, if $XY < XZ$, then

- (a) $m(\angle Y) \leq m(\angle Z)$ (b) $m(\angle Y) > m(\angle Z)$
(c) $m(\angle Y) = m(\angle Z)$ (d) $m(\angle Z) > m(\angle Y)$

5 If $\triangle ABC$ is right-angled at B , $m(\angle A) = 55^\circ$, then the number of axes of symmetry of $\triangle ABC$ equals

- (a) 1 (b) 2 (c) 3 (d) zero

6 The triangle in which the measures of two angles of it are 42° and 69° is triangle.

- (a) an isosceles (b) an equilateral (c) a scalene (d) a right-angled

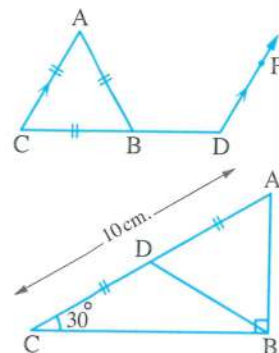
2 Complete the following :

- 1 Any point on the axis of symmetry of a line segment is from its terminals.
- 2 The longest side in the right-angled triangle is
- 3 The point of intersection of the medians of the triangle divides each of them by the ratio : from the vertex.
- 4 The measure of any exterior angle of an equilateral triangle equals $^\circ$
- 5 The sum of the lengths of any two sides in a triangle is the length of the third side.

3 [a] In the opposite figure :

$\triangle ABC$ is an equilateral triangle , $\overrightarrow{DF} \parallel \overrightarrow{AC}$

Find by proof : $m(\angle D)$

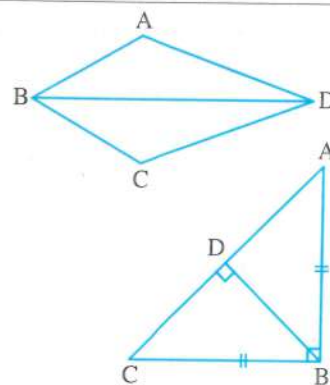


[b] In the opposite figure :

$m(\angle ABC) = 90^\circ$, $m(\angle C) = 30^\circ$

, $AC = 10$ cm. , $AD = DC$

Find : The perimeter of $\triangle ABD$



4 [a] In the opposite figure :

$AB < AD$, $BC < CD$

Prove that : $m(\angle ABC) > m(\angle ADC)$

[b] In the opposite figure :

$m(\angle ABC) = 90^\circ$, $\overline{BD} \perp \overline{AC}$

, $AB = BC$

Prove that : $\triangle DCB$ is an isosceles triangle.

5 [a] XYZ is a triangle in which $m(\angle X) = 60^\circ$, $m(\angle Y) = 50^\circ$

Order the lengths of the sides of the triangle descendingly.

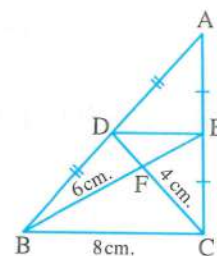
[b] In the opposite figure :

ABC is a triangle in which D , E are the midpoints of \overline{AB} , \overline{AC}

, $FC = 4$ cm. , $FB = 6$ cm.

, $BC = 8$ cm.

Find : The perimeter of $\triangle DFE$



2

Cairo Governorate



Hadayeq El-Koba Zone
Al Nokrashy Governmental Lang. School

Answer the following questions :

1 Choose the correct answer from those given :

1 A triangle has one line of symmetry , the lengths of two sides are 4 cm. and 8 cm. , then the length of the third side is cm.

(a) 3

(b) 4

(c) 8

(d) 6

2 The point of intersection of the medians of the triangle divides each median in the ratio of from the base.

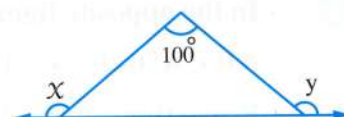
(a) 2 : 1

(b) 2 : 3

(c) 1 : 2

(d) 1 : 3

- 3 If $m(\angle A) = 50^\circ$, then the measure of its reflex angle is
 (a) 40° (b) 130° (c) 310° (d) 180°
- 4 If the length of the side of an equilateral triangle is 10 cm., then the length of its height is cm.
 (a) 10 (b) 5 (c) $5\sqrt{3}$ (d) 6
- 5 In $\triangle ABC$, if $AB = 6$ cm., $AC = 7$ cm., then the length of $\overline{BC} \in$
 (a) $[6, 7]$ (b) $]1, 7[$ (c) $[1, 13]$ (d) $]1, 13[$
- 6 In the opposite figure :
 $x + y =$
 (a) 180° (b) 360°
 (c) 240° (d) 280°



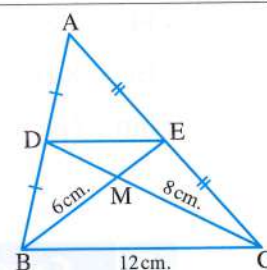
2 Complete :

- 1 If the measures of two angles in a triangle are different, then the greater angle in measure of them is
- 2 In the triangle ABC, if $m(\angle A) = 50^\circ$, $m(\angle B) = 60^\circ$, then the longest side is
- 3 The median drawn from the vertex angle of an isosceles triangle and
- 4 In $\triangle ABC$, if $m(\angle A) = 30^\circ$, $m(\angle B) = 90^\circ$, then $AC =$ BC
- 5 The perpendicular bisector of a line segment is called

3 [a] In the opposite figure :

In $\triangle ABC$: \overline{BE} , \overline{CD} are two medians, $MB = 6$ cm.,
 $BC = 12$ cm., $MC = 8$ cm.

Find : The perimeter of $\triangle MDE$



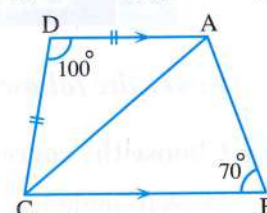
[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $AD = DC$

$m(\angle D) = 100^\circ$, $m(\angle B) = 70^\circ$

Prove that : 1 $AC > AB$

2 $\triangle ABC$ is isosceles.



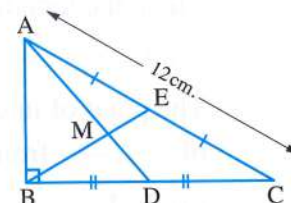
4 [a] In the opposite figure :

$\triangle ABC$ is right-angled at B

E and D are the midpoints of \overline{AC} , \overline{BC} respectively

$AC = 12$ cm.

Find : The length of each of \overline{BE} , \overline{ME}



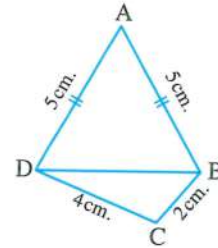
[b] In the opposite figure :

ABCD is a quadrilateral

, $AB = AD = 5 \text{ cm}$.

, $BC = 2 \text{ cm}$, $DC = 4 \text{ cm}$.

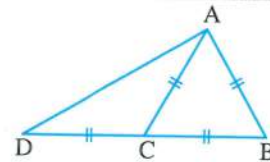
Prove that : $m(\angle ABC) > m(\angle ADC)$



5 [a] In the opposite figure :

$AB = BC = AC = CD$

Prove that : $m(\angle BAD) = 90^\circ$

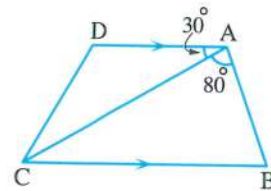


[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $m(\angle BAC) = 80^\circ$

, $m(\angle DAC) = 30^\circ$

Prove that : $BC > AB$



3

Cairo Governorate



New Cairo Educational Zone
Dr. Nermien Ismail Schools

Answer the following questions :

1 Choose the correct answer :

1 In $\triangle ABC$, if $AB = AC$, $m(\angle B) = 40^\circ$, then $m(\angle A) = \dots\dots\dots$

- (a) 70° (b) 55° (c) 100° (d) 40°

2 The point of concurrence of the medians of the triangle divides each median at the ratio $\dots\dots\dots$ from the vertex.

- (a) $1 : 2$ (b) $2 : 1$ (c) $2 : 3$ (d) $1 : 3$

3 In $\triangle ABC$, if $AB = 7 \text{ cm}$, $BC = 10 \text{ cm}$, then the length of \overline{AC} must satisfy which of the following inequalities ?

- (a) $3 \leq AC \leq 17$ (b) $3 < AC < 17$ (c) $10 < AC < 20$ (d) $14 < AC < 20$

4 If $\triangle ABD$ is obtuse-angled at B and C is the midpoint of \overline{BD} , then the longest side in $\triangle ABD$ is $\dots\dots\dots$

- (a) \overline{AB} (b) \overline{AC} (c) \overline{AD} (d) \overline{BD}

5 In $\triangle ABC$, if $m(\angle A) = 64^\circ$, $m(\angle B) = 35^\circ$, then the longest side of the triangle is $\dots\dots\dots$

- (a) \overline{AB} (b) \overline{AC} (c) \overline{BC} (d) otherwise.

- 6 ABCD is a rectangle, M is the point of intersection of its diagonals, if the length of the diagonal is 6 cm., then the length of the median \overline{AM} is cm.

(a) 3 (b) 6 (c) 9 (d) 12

2 Complete each of the following :

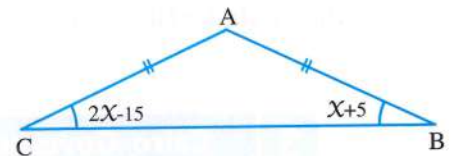
- 1 The length of the side which is opposite to the angle of measure 30° in the right-angled triangle equals the length of the hypotenuse.
- 2 In the right-angled triangle, the longest side is the
- 3 The straight line drawn from the vertex of the isosceles triangle, perpendicular to the base this vertex.
- 4 The measure of the exterior angle of the equilateral triangle equals $^\circ$
- 5 The number of axes of symmetry of the isosceles triangle is

3 [a] In the opposite figure :

ABC is a triangle, $AB = AC$, $m(\angle B) = (X + 5)^\circ$

, $m(\angle C) = (2X - 15)^\circ$

Find : $m(\angle A)$ (show all of your work)



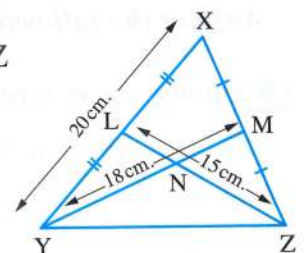
[b] In the opposite figure :

N is the point of concurrence of the medians of the triangle XYZ

, $LZ = 15$ cm., $YM = 18$ cm.

, $XY = 20$ cm.

Find : The perimeter of the triangle NLY



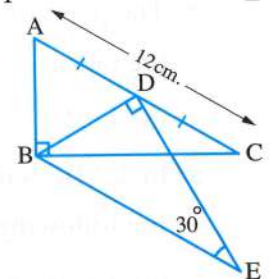
[c] In the opposite figure :

$m(\angle ABC) = m(\angle BDE) = 90^\circ$

, D is the midpoint of \overline{AC}

, $m(\angle E) = 30^\circ$, $AC = 12$ cm.

Find with proof : The length of \overline{BE}



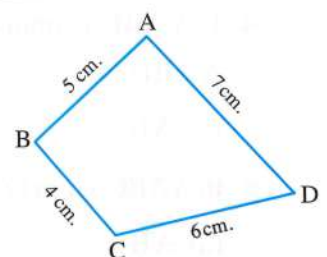
4 [a] In the opposite figure :

ABCD is a quadrilateral in which :

$AB = 5$ cm., $BC = 4$ cm., $CD = 6$ cm.

, $AD = 7$ cm.

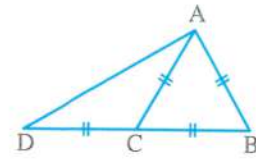
Prove that : $m(\angle ABC) > m(\angle ADC)$



[b] In the opposite figure :

$$AB = AC = CB = CD$$

Prove that : $\overline{AB} \perp \overline{AD}$



[c] XYZ is a triangle in which : $XY = 10$ cm. , $YZ = 6$ cm. and $XZ = 8$ cm.

Arrange the measures of the angles of the triangle.

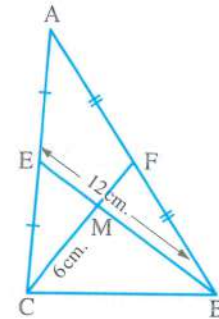
[d] In the opposite figure :

ABC is a triangle in which : F , E are the midpoints of \overline{AB} and \overline{AC} respectively

$$EB = 12 \text{ cm.}$$

$$MC = 6 \text{ cm.}$$

Find with proof : The length of each of \overline{EM} and \overline{MF}

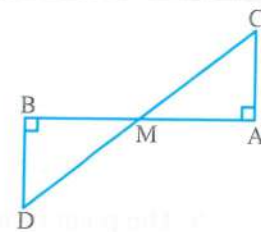


5 [a] In the opposite figure :

$$\overline{DC} \cap \overline{AB} = \{M\}$$

$$m(\angle A) = m(\angle B) = 90^\circ$$

Prove that : $DC > AB$



[b] ABC is a triangle in which : $m(\angle A) = (6x)^\circ$

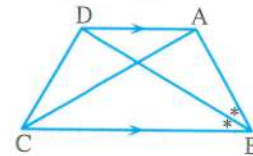
$$m(\angle B) = (4x - 9)^\circ, m(\angle C) = 3(x - 2)^\circ$$

Arrange the lengths of the sides of the triangle.

[c] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, \overline{BD} bisects $\angle ABC$

Prove that : $\triangle BAD$ is an isosceles triangle.



4

Giza Governorate



South Giza Administration

Answer the following questions :

1 Choose the correct answer :

1 If the measures of two angles of a triangle are 40° , 100° , then the triangle is triangle.

(a) an isosceles (b) an equilateral (c) a scalene (d) a right-angled

2 The angle whose measure is more than 90° and less than 180° is angle.

(a) an acute (b) an obtuse (c) a straight (d) a reflex

- 3 If the lengths of two sides in an isosceles triangle are 7 cm. and 3 cm. , then the length of the third side is cm.
 (a) 3 (b) 10 (c) 7 (d) 4
- 4 In $\triangle ABC$, if $m(\angle B) = 120^\circ$, then the longest side in it is
 (a) \overline{BC} (b) \overline{AC} (c) \overline{AB} (d) its median.
- 5 If $\triangle ABC$ is right-angled at B , $AB = 3$ cm. , $BC = 4$ cm. , then the length of the median from B is cm.
 (a) 5 (b) 4 (c) 2.5 (d) 6
- 6 In $\triangle ABC$, if $m(\angle A) = 30^\circ$, $m(\angle B) = 90^\circ$ and $AC = 10$ cm. , then $BC =$
 (a) 20 cm. (b) 15 cm. (c) 10 cm. (d) 5 cm.

2 Complete each of the following :

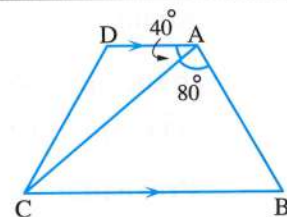
- 1 The angle of measure 70° complements an angle of measure $^\circ$
- 2 In $\triangle ABC$, if $AB = 3$ cm. , $BC = 5$ cm. , then $AC \in].....,[$
- 3 If $\overline{AB} \equiv \overline{CD}$ and $AB = 6$ cm. , then $AB + CD =$ cm.
- 4 The bisector of the vertex angle of an isosceles triangle and
- 5 The point of intersection of the medians of the triangle divides each median in the ratio : from the vertex.

3 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $m(\angle BAC) = 80^\circ$

and $m(\angle DAC) = 40^\circ$

Prove that : $BC > AC$



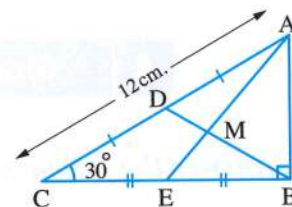
[b] In the opposite figure :

$\triangle ABC$ is right-angled at B , $m(\angle C) = 30^\circ$

, D is the midpoint of \overline{AC}

, E is the midpoint of \overline{BC} , $AC = 12$ cm.

Find : The length of each of \overline{BD} , \overline{BM} and \overline{AB}

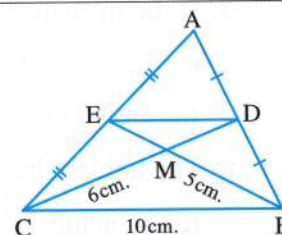


4 [a] In the opposite figure :

D and E are the midpoints of \overline{AB} and \overline{AC} respectively

, $BC = 10$ cm. , $MB = 5$ cm. and $MC = 6$ cm.

Find : The perimeter of $\triangle MDE$

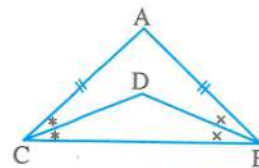


[b] In the opposite figure :

$AB = AC$, \overline{BD} bisects $\angle ABC$

and \overline{CD} bisects $\angle ACB$

Prove that : $\triangle DBC$ is an isosceles triangle.

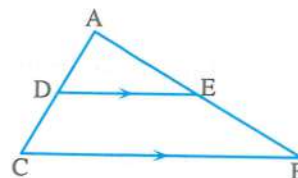


5 [a] In the opposite figure :

ABC is a triangle in which :

$AB > AC$ and $\overline{DE} \parallel \overline{BC}$

Prove that : $m(\angle ADE) > m(\angle AED)$

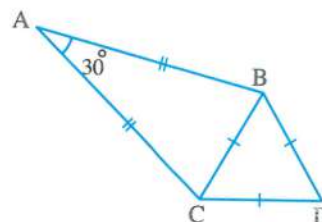


[b] In the opposite figure :

$m(\angle A) = 30^\circ$, $AB = AC$

and $\triangle DBC$ is equilateral.

Find : $m(\angle ABD)$



5

Giza Governorate



Boulaq El Dakroul Directorate
Dar El Hanan Lang. Sch. For Girls

Answer the following questions :

1 Choose the correct answer :

1 The lengths 9 cm. , 4 cm. and may be the side lengths of an isosceles triangle.

- (a) 9 cm. (b) 13 cm. (c) 5 cm. (d) 4 cm.

2 In $\triangle ABC$, if $m(\angle B) = 130^\circ$, then the longest side of it is

- (a) \overline{BC} (b) \overline{AC} (c) \overline{AB} (d) its median.

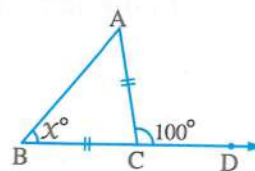
3 In the opposite figure :

$CA = CB$, $m(\angle B) = x^\circ$

, $m(\angle ACD) = 100^\circ$ where $C \in \overline{BD}$

, then $x = \dots\dots\dots$

- (a) 50° (b) 100° (c) 150° (d) 200°



4 The measure of the exterior angle of an equilateral triangle equals

- (a) 30° (b) 60° (c) 90° (d) 120°

5 In $\triangle ABC$, if $AB = 6$ cm. and $AC = 7$ cm. , then $BC \in \dots\dots\dots$

- (a) $]6, 13[$ (b) $[6, 7[$ (c) $]1, 13[$ (d) $[1, 7[$

6 In the opposite figure :

$AD = DC$, $m(\angle C) = 30^\circ$

, $m(\angle ABC) = 90^\circ$, $AB = 5$ cm.

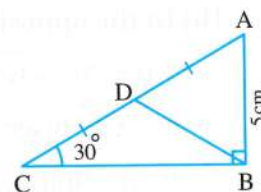
, then the perimeter of $\triangle ABD = \dots\dots\dots$ cm.

(a) 5

(b) 15

(c) 20

(d) 25



2 Complete the following :

1 ABC is a triangle in which $AB = AC$ and $m(\angle A) = 60^\circ$, if its perimeter = 18 cm.
 , then $BC = \dots\dots\dots$ cm.

2 The number of the axes of symmetry of the equilateral triangle equals $\dots\dots\dots$

3 The longest side of the right-angled triangle is the $\dots\dots\dots$

4 If the angles of a triangle are congruent , then the triangle is $\dots\dots\dots$

5 In $\triangle ABC$, if $AB > BC$, then $m(\angle A) \dots\dots\dots m(\angle C)$

3 [a] In the opposite figure :

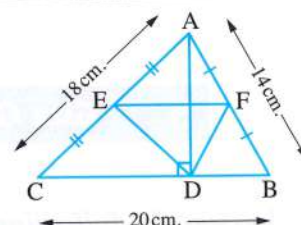
ABC is a triangle in which $AB = 14$ cm.

, $AC = 18$ cm. , $BC = 20$ cm.

, E is the midpoint of \overline{AC}

, F is the midpoint of \overline{AB} and $\overline{AD} \perp \overline{BC}$

Find : The perimeter of $\triangle DEF$

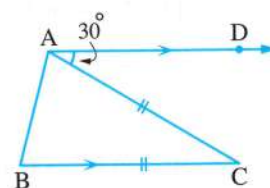


[b] In the opposite figure :

ABC is a triangle in which $AC = BC$

, $\overline{AD} \parallel \overline{BC}$, $m(\angle DAC) = 30^\circ$

Find with proof : The measures of the angles of $\triangle ABC$



4 [a] In the opposite figure :

$AB = BC = AC = DC$

Prove that :

$m(\angle BAD) = 90^\circ$

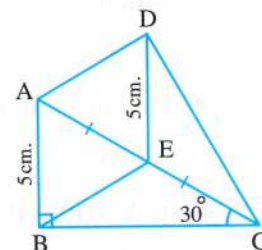
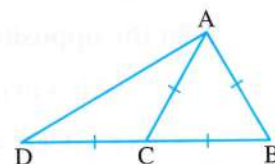
[b] In the opposite figure :

$m(\angle ABC) = 90^\circ$, E is the midpoint of \overline{AC}

, $m(\angle ACB) = 30^\circ$

, $AB = DE = 5$ cm.

Prove that : $m(\angle ADC) = 90^\circ$



- 5 [a] In $\triangle ABC$, $m(\angle A) = 40^\circ$, $m(\angle B) = 75^\circ$, $m(\angle C) = 65^\circ$, arrange the lengths of the sides of this triangle descendingly.

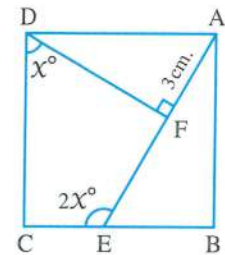
[b] In the opposite figure :

ABCD is a square, $E \in \overline{BC}$

where $m(\angle FDC) = x^\circ$ and $m(\angle FEC) = 2x^\circ$

, $\overline{DF} \perp \overline{AE}$, $AF = 3$ cm.

Calculate : The area of the square ABCD



6

Alexandria Governorate



El-Montazah Educational Zone
Leaders Language School

Answer the following questions :

1 Complete :

- 1 If $\triangle ABC$ is a right-angled triangle at B, $m(\angle A) = 30^\circ$, $AC = 10$ cm, then $CB = \dots\dots\dots$ cm.
- 2 In $\triangle ABC$, $m(\angle A) = m(\angle B) = m(\angle C)$, then the measure of the exterior angle equals $\dots\dots\dots^\circ$
- 3 In $\triangle ABC$, $AB = AC$, $m(\angle B) = x + 30^\circ$, $m(\angle C) = 2x + 5^\circ$, then $x = \dots\dots\dots^\circ$
- 4 In a triangle, if two angles are unequal in measure, then the greater angle in measure is opposite to $\dots\dots\dots$
- 5 In any triangle, the sum of the lengths of any two sides $\dots\dots\dots$ the length of the third side.

2 Choose the correct answer :

- 1 If \overline{AD} is a median of $\triangle ABC$ and M is the point of concurrence of the medians, then $AM = \dots\dots\dots AD$
 (a) $\frac{2}{3}$ (b) $\frac{1}{2}$ (c) $\frac{3}{2}$ (d) 2
- 2 The measure of one of the base angles of an isosceles triangle is 65° , then the measure of its vertex angle equals $\dots\dots\dots^\circ$
 (a) 65 (b) 50 (c) 130 (d) 55
- 3 In the triangle ABC, if $m(\angle A) = 50^\circ$, $m(\angle B) = 60^\circ$, then the longest side is $\dots\dots\dots$
 (a) \overline{AB} (b) \overline{BC} (c) \overline{AC} (d) 110 cm.
- 4 The numbers which can not be side lengths of a triangle are $\dots\dots\dots$
 (a) 3, 3, 3 (b) 3, 3, 4 (c) 3, 3, 5 (d) 3, 3, 6

Geometry

5 The number of the axes of symmetry of the scalene triangle is

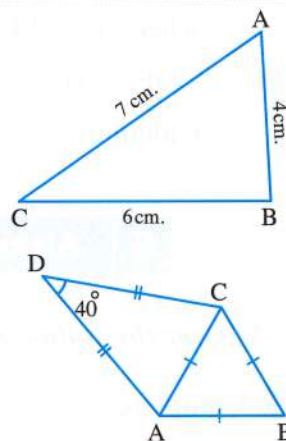
- (a) 1 (b) 2 (c) 3 (d) 0

6 If $\triangle XYZ$ is right-angled at Y, then XZ YZ

- (a) < (b) \leq (c) > (d) =

3 [a] In the opposite figure :

Arrange the angles of $\triangle ABC$ descendingly due to their measures.



[b] In the opposite figure :

$m(\angle D) = 40^\circ$, $DA = DC$

and $\triangle ABC$ is an equilateral triangle.

Find : $m(\angle DCB)$

4 [a] In the opposite figure :

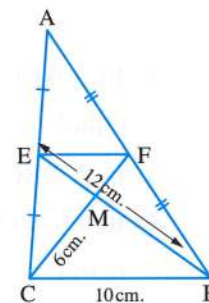
ABC is a triangle

, F and E are the midpoints of \overline{AB} and \overline{AC} respectively

If $BE = 12$ cm., $CM = 6$ cm.

, $BC = 10$ cm.

, then find : The perimeter of $\triangle MEF$

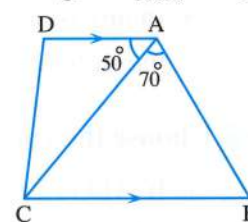


[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $m(\angle CAB) = 70^\circ$

, $m(\angle DAC) = 50^\circ$

Prove that : $BC > AC$



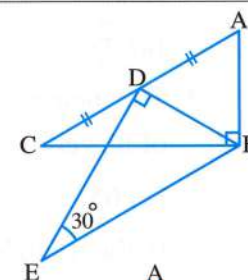
5 [a] In the opposite figure :

$m(\angle ABC) = m(\angle BDE) = 90^\circ$

, $m(\angle E) = 30^\circ$

, D is the midpoint of \overline{AC}

Prove that : $AC = BE$

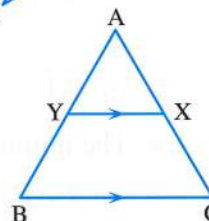


[b] In the opposite figure :

ABC is a triangle in which :

$AB = AC$, $\overline{XY} \parallel \overline{CB}$

Prove that : $\triangle AXY$ is an isosceles triangle.



7

Alexandria Governorate

Borg El-Arab Zone
Mathematical Supervisors

Answer the following questions :

1 Choose the correct answer :

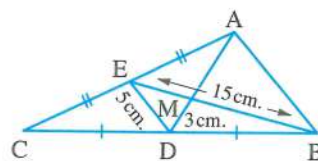
- 1 An isosceles triangle has two sides of lengths 6 cm. and 12 cm. , then the length of the third side equals cm.
(a) 6 (b) 9 (c) 12 (d) 18
- 2 In $\triangle XYZ$, if $m(\angle Y) = 115^\circ$, then the longest side is
(a) \overline{XY} (b) \overline{YZ}
(c) \overline{ZX} (d) the median of the triangle.
- 3 The lengths 5 cm. , 4 cm. and cm. are lengths of sides of a triangle.
(a) 8 (b) 9 (c) 12 (d) 10
- 4 The triangle having two angles of measures 74° and 53° is triangle.
(a) an isosceles (b) an equilateral (c) a scalene (d) a right-angled
- 5 The intersection point of the medians of a triangle divides each median by the ratio 1 : from the base.
(a) 1 (b) 2 (c) 3 (d) 4
- 6 If two sides of a triangle have unequal lengths , then the smaller side is opposite to the angle of the measure from that is opposite to the other side.
(a) greater (b) smaller (c) equal (d) otherwise

2 Complete each of the following :

- 1 The length of the median of the right-angled triangle drawn from the vertex of the right angle equals the length of the hypotenuse.
- 2 The number of the axes of symmetry of an isosceles triangle is
- 3 The measure of the exterior angle of the equilateral triangle equals $^\circ$
- 4 The two angles of the base of an isosceles triangle are
- 5 The sum of the measures of the accumulative angles at a point equals $^\circ$

3 [a] In the opposite figure :

If E is the midpoint of \overline{AC} and D is the midpoint of \overline{BC}
 , $ED = 5$ cm. , $MD = 3$ cm. and $BE = 15$ cm.
 , find : The perimeter of $\triangle AMB$



- [b] ABC is a triangle in which : $m(\angle B) = 40^\circ$, $m(\angle C) = 80^\circ$
 Arrange its side lengths ascendingly.

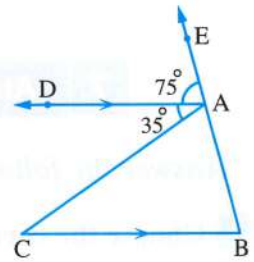
4 [a] In the opposite figure :

$$\overrightarrow{AD} \parallel \overrightarrow{BC}$$

$$, m(\angle EAD) = 75^\circ$$

$$\text{and } m(\angle DAC) = 35^\circ$$

Prove that : $AC > AB$



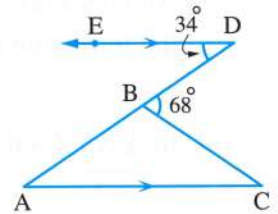
[b] In the opposite figure :

$$\overrightarrow{DE} \parallel \overrightarrow{AC}$$

$$, m(\angle EDA) = 34^\circ$$

$$\text{and } m(\angle DBC) = 68^\circ$$

Prove that : $\triangle ABC$ is an isosceles triangle.

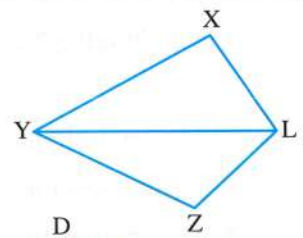


5 [a] In the opposite figure :

$$\text{If } XY > XL$$

$$, YZ > ZL$$

, prove that : $m(\angle XLZ) > m(\angle XYZ)$



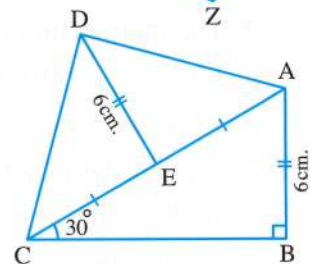
[b] In the opposite figure :

$$m(\angle B) = 90^\circ , m(\angle ACB) = 30^\circ$$

$$, E \text{ is the midpoint of } \overline{AC} \text{ and } AB = DE = 6 \text{ cm.}$$

Find : 1 The length of \overline{AC}

2 $m(\angle ADC)$



Answer the following questions :

1 Choose the correct answer :

1 In any isosceles triangle , the type of the base angles is

- (a) acute. (b) right. (c) obtuse. (d) reflex.

2 The medians of the triangle intersect at

- (a) 4 points. (b) 3 points. (c) 2 points. (d) a point.

3 ABC is a triangle in which $m(\angle A) = 100^\circ$, then the greatest side in length in the triangle is

- (a) \overline{AB} (b) \overline{AC} (c) \overline{BC} (d) \overline{BD}

4 The numbers which can be lengths of sides of a triangle are

- (a) 0 , 3 , 5 (b) 3 , 3 , 5 (c) 3 , 3 , 6 (d) 3 , 3 , 7

- 5 The triangle which has three axes of symmetry is
 (a) scalene. (b) isosceles. (c) right-angled. (d) equilateral.
- 6 If $\triangle ABC$ is an equilateral triangle, then $m(\angle B) = \dots\dots\dots$
 (a) 30° (b) 60° (c) 70° (d) 90°

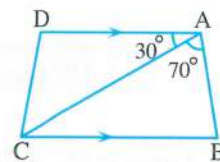
2 Complete :

- 1 In $\triangle ABC$, if the point D is the midpoint of \overline{AB} and the point E is the midpoint of \overline{AC} , then $DE = \dots\dots\dots BC$
- 2 The base angles in the isosceles triangle are in measure.
- 3 In the triangle, the smallest angle in measure is opposite to side in length.
- 4 In the triangle ABC, if $AB = AC$, $m(\angle A) = 70^\circ$, so $m(\angle C) = \dots\dots\dots^\circ$
- 5 The point of concurrence of the medians of the triangle divides each median in the ratio of from the base.

3 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $m(\angle BAC) = 70^\circ$
 $m(\angle DAC) = 30^\circ$

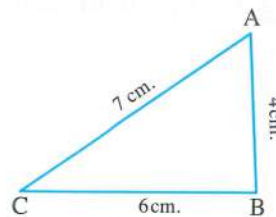
Prove that : $AC > BC$



[b] In the opposite figure :

$AB = 4 \text{ cm.}$, $BC = 6 \text{ cm.}$
 $AC = 7 \text{ cm.}$

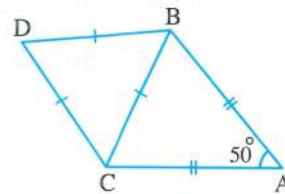
Arrange the measures of the angles of the triangle ABC descendingly.



4 [a] In the opposite figure :

$m(\angle A) = 50^\circ$, $AB = AC$
 and $\triangle DBC$ is an equilateral triangle.

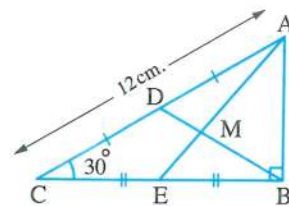
Find : $m(\angle ABD)$



[b] In the opposite figure :

$\triangle ABC$ is right-angled at B, $m(\angle C) = 30^\circ$
 D is the midpoint of \overline{AC}
 E is the midpoint of \overline{BC} , $AC = 12 \text{ cm.}$

Find : The length of each of \overline{BD} , \overline{BM} and \overline{AB}

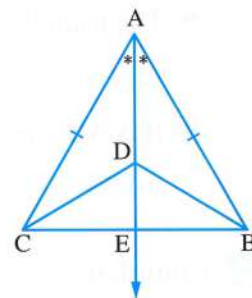


5 [a] In the opposite figure :

ABC is a triangle in which :
 $AB = AC$, \overrightarrow{AE} bisects $\angle BAC$
 $\overrightarrow{AE} \cap \overrightarrow{BC} = \{E\}$, $D \in \overrightarrow{AE}$

Prove that : 1 $BE = \frac{1}{2} BC$

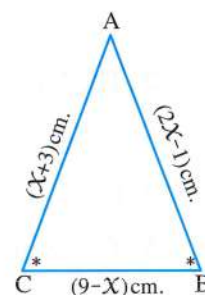
2 $BD = CD$



[b] In the opposite figure :

ABC is a triangle in which :
 $m(\angle B) = m(\angle C)$
 $AB = (2x - 1) \text{ cm.}$
 $AC = (x + 3) \text{ cm.}$, $BC = (9 - x) \text{ cm.}$

Find : The perimeter of the triangle ABC



9

El-Sharkia Governorate



Hehia Educational Zone
 Governmental Language Schools

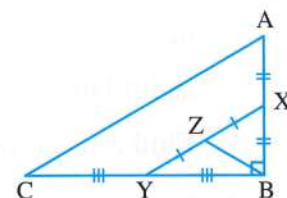
Answer the following questions :

1 Complete the following :

- 1 The base angles of the isosceles triangle are
- 2 In $\triangle ABC$, if $\overrightarrow{AB} \perp \overrightarrow{BC}$ and $AB = BC$, then $m(\angle A) = \dots\dots\dots^\circ$
- 3 In $\triangle ABC$, if $AB > AC$, then $m(\angle C) \dots\dots\dots m(\angle B)$
- 4 The triangle whose side lengths are $(2x - 1) \text{ cm.}$, $(x + 3) \text{ cm.}$, 7 cm. becomes an equilateral triangle when $x = \dots\dots\dots \text{ cm.}$

5 In the opposite figure :

$AC = \dots\dots\dots BZ$



2 Choose the correct answer from those given :

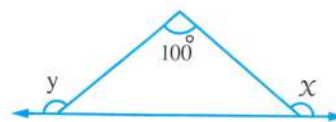
- 1 The sum of lengths of any two sides in a triangle is the length of the third side.
 - (a) smaller than
 - (b) greater than
 - (c) equal to
 - (d) twice

- 2 The measure of the exterior angle of the equilateral triangle equals
 (a) 30° (b) 60° (c) 90° (d) 120°
- 3 The length of the hypotenuse of the right-angled triangle equals the length of the median drawn from the vertex of the right angle.
 (a) third (b) quarter (c) half (d) twice
- 4 The lengths of two sides in a triangle are 4 cm. and 9 cm. and it has one axis of symmetry, then the length of the third side is
 (a) 4 cm. (b) 5 cm. (c) 9 cm. (d) 13 cm.
- 5 The quadrilateral ABCD in which \overline{BD} is an axis of symmetry of \overline{AC} may be a
 (a) rhombus. (b) rectangle. (c) parallelogram. (d) trapezium.

6 In the opposite figure :

$x + y = \dots\dots\dots$

- (a) 100° (b) 280°
 (c) 140° (d) 80°

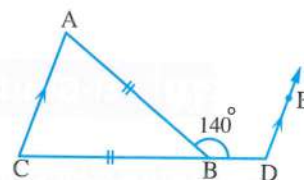


3 [a] In the opposite figure :

$AB = BC$, $m(\angle ABD) = 140^\circ$

and $\overline{AC} \parallel \overline{DE}$

Find : $m(\angle EDC)$



[b] In the opposite figure :

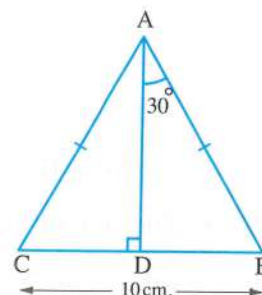
$AB = AC$, $BC = 10$ cm.

, $m(\angle BAD) = 30^\circ$

and $\overline{AD} \perp \overline{BC}$

Find : 1 The length of each of \overline{BD} and \overline{AD}

2 The area of $\triangle ABC$



4 [a] In the opposite figure :

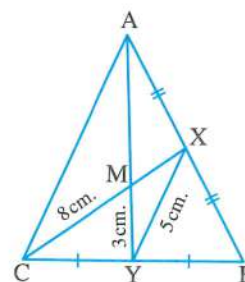
ABC is a triangle, X is the midpoint of \overline{AB}

, Y is the midpoint of \overline{BC} , $XY = 5$ cm.

, $\overline{XC} \cap \overline{AY} = \{M\}$ where $CM = 8$ cm.

, $YM = 3$ cm.

Find : The perimeter of $\triangle MXY$

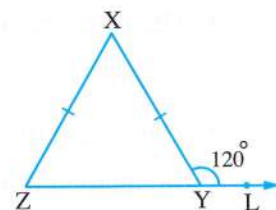


[b] In the opposite figure :

$$XY = XZ, m(\angle XYL) = 120^\circ, L \in \overrightarrow{ZY}$$

Prove that :

$\triangle XYZ$ is an equilateral triangle.



5 [a] In the opposite figure :

$\triangle XYZ$ is a right-angled triangle

at Y and $M \in \overline{YZ}$

Prove that : $XZ > XM$

[b] In the opposite figure :

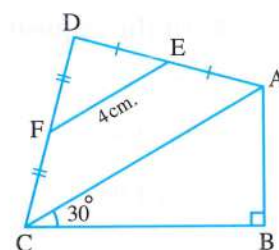
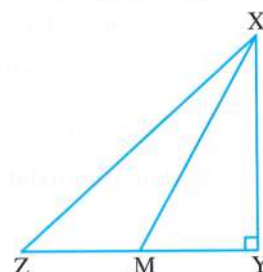
ABCD is a quadrilateral in which :

$m(\angle B) = 90^\circ$, E is the midpoint of \overline{AD}

, F is the midpoint of \overline{CD}

, $m(\angle ACB) = 30^\circ$ and $EF = 4$ cm.

Find by proof : The length of \overline{AB}



10 El-Gharbia Governorate



The Central Maths Supervision
Official Language Schools

Answer the following questions :

1 Choose the correct answer :

[1] In $\triangle ABC$, if $m(\angle C) = 65^\circ$, $m(\angle A) = 75^\circ$, then

- (a) $AB > BC$ (b) $AB < AC$ (c) $BC > AB$ (d) $AB = AC$

[2] The sum of measures of two angles in the equilateral triangle equals

- (a) 180° (b) 60° (c) 360° (d) 120°

[3] The numbers 5, 4, can be lengths of sides of a triangle.

- (a) 8 (b) 9 (c) 10 (d) 12

[4] If M is the point of intersection of the medians of $\triangle ABC$ and D is the midpoint of \overline{BC} , then $AD = \dots\dots\dots$

- (a) 2 AM (b) 3 MD (c) $\frac{2}{3}$ MD (d) AM

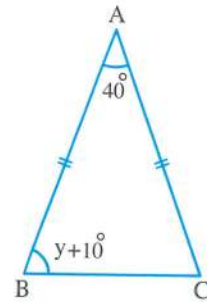
[5] If $\triangle ABC$ is right-angled at B, then

- (a) $AC < AB$ (b) $AC > BC$ (c) $AB = AC$ (d) $BC > AC$

6 In the opposite figure :

$y = \dots\dots\dots$

- (a) 30°
- (b) 40°
- (c) 60°
- (d) 70°

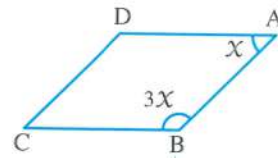


2 Complete the following :

- 1 In $\triangle XYZ$, if $XY = XZ$, $\overline{XL} \perp \overline{YZ}$, then \overline{XL} bisects each of $\dots\dots\dots$ and $\dots\dots\dots$
- 2 The number of axes of symmetry of the isosceles triangle is $\dots\dots\dots$
- 3 If ABC is a right-angled triangle at B, $AB = BC$, then $m(\angle C) = \dots\dots\dots^\circ$
- 4 The longest side of the right-angled triangle is $\dots\dots\dots$

5 In the opposite figure :

ABCD is a parallelogram
 , then $X = \dots\dots\dots^\circ$

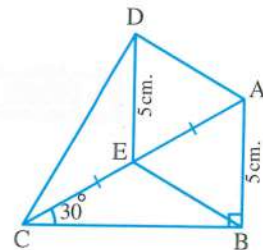


3 [a] In the opposite figure :

ABC is a right-angled triangle at B
 $m(\angle ACB) = 30^\circ$, $AB = 5$ cm.

and E is the midpoint of \overline{AC}

If $DE = 5$ cm. , **prove that** : $m(\angle ADC) = 90^\circ$



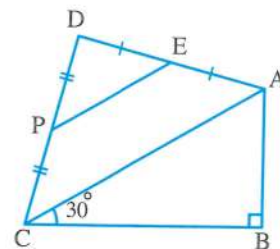
[b] In the opposite figure :

$m(\angle B) = 90^\circ$, $m(\angle ACB) = 30^\circ$

E is the midpoint of \overline{AD}

, P is the midpoint of \overline{CD}

Prove that : $AB = EP$

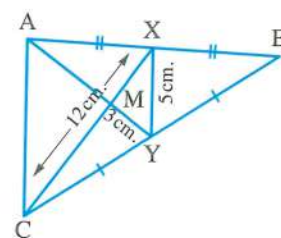


4 [a] In the opposite figure :

M is the intersection point of the medians
 of $\triangle ABC$, $XY = 5$ cm.

, $CX = 12$ cm. , $MY = 3$ cm.

Find with proof : The perimeter of $\triangle MAC$

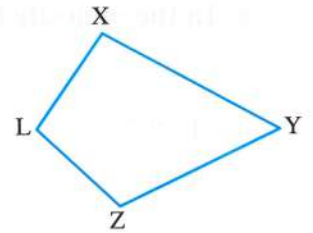


[b] In the opposite figure :

$XY > XL$ and $YZ > ZL$

Prove that :

$m(\angle XLZ) > m(\angle XYZ)$



5 [a] In the opposite figure :

ABC is a triangle in which $AB = AC$

, \overrightarrow{AE} bisects $\angle BAC$

Prove that :

1 $BE = \frac{1}{2} BC$

2 $BD = CD$

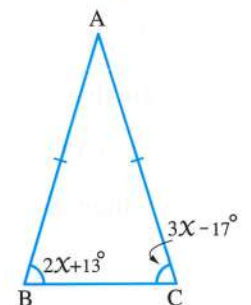
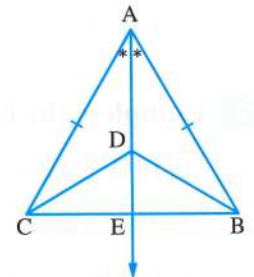
[b] In the opposite figure :

$AB = AC$, $m(\angle B) = 2x + 13^\circ$

, $m(\angle C) = 3x - 17^\circ$

Find :

The measures of the angles of $\triangle ABC$



Answer the following questions :

1 Choose the correct answer :

1 In $\triangle ABC$, if $AB = 3$ cm. , $BC = 5$ cm. , then $AC \in$

- (a) $]3, 5[$ (b) $[3, 5]$ (c) $]2, 8[$ (d) $[2, 8]$

2 If the lengths of two sides of an isosceles triangle are 5 cm. and 10 cm. , then the length of the third side is cm.

- (a) 10 (b) 5 (c) 15 (d) 4

3 In $\triangle ABC$, if $m(\angle A) = 100^\circ$, then the longest side of it is

- (a) \overline{AB} (b) \overline{AC} (c) \overline{BC} (d) its median.

4 In $\triangle ABC$, if $2m(\angle A) = m(\angle B) + m(\angle C)$, then $m(\angle A) =$ °

- (a) 45 (b) 90 (c) 60 (d) 120

5 If $A \in$ the axis of symmetry of \overline{BC} , then \overline{AB} \overline{AC}

- (a) \equiv (b) $=$ (c) $//$ (d) \perp

- 6 The point of intersection of the medians of the triangle divides each of them in the ratio from the vertex.

(a) 2 : 1 (b) 3 : 1 (c) 3 : 2 (d) 1 : 2

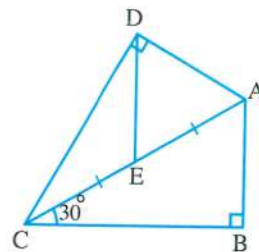
2 Complete :

- 1 The base angles of an isosceles triangle are in measure.
 2 If $\triangle ABC$ has one axis of symmetry and $m(\angle A) = 120^\circ$, then $m(\angle B) = \dots\dots\dots^\circ$
 3 In $\triangle ABC$, if $AB > AC$, then $m(\angle C) > \dots\dots\dots$
 4 The bisector of the vertex angle of an isosceles triangle and
 5 In a triangle, if two angles are unequal in measure, then the greater angle in measure is opposite to

3 [a] In the opposite figure :

$m(\angle B) = 90^\circ$, $m(\angle ADC) = 90^\circ$
 $m(\angle ACB) = 30^\circ$
 \overline{DE} is a median in $\triangle ADC$

Prove that : $AB = DE$



- [b] In $\triangle ABC$, if $AB = 7$ cm., $BC = 5$ cm., $AC = 6$ cm., arrange the measures of the angles of the triangle ABC ascendingly.

4 [a] In the opposite figure :

$AB > BC$, $AD > CD$

Prove that :

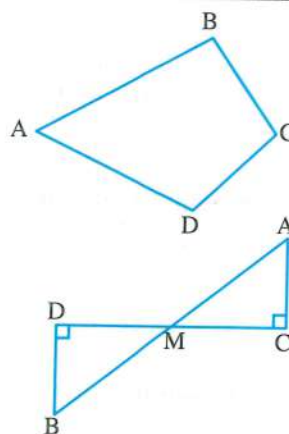
$m(\angle C) > m(\angle A)$

[b] In the opposite figure :

$\overline{AB} \cap \overline{CD} = \{M\}$

$m(\angle C) = m(\angle D) = 90^\circ$

Prove that : $AB > DC$

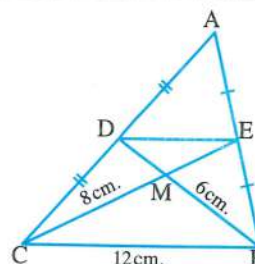


5 [a] In the opposite figure :

If D, E are the midpoints of \overline{AC} , \overline{AB}

$MB = 6$ cm., $MC = 8$ cm., $BC = 12$ cm.

Find : The perimeter of $\triangle MDE$

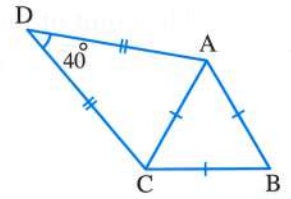


[b] In the opposite figure :

$$AB = BC = AC, DA = DC$$

$$, m(\angle D) = 40^\circ$$

Find : $m(\angle BAD)$



12

Port Said Governorate



Educational Directorate
Math Department

Answer the following questions :

1 Choose the correct answer :

- 1 In $\triangle ABC$, if $AC = 4$ cm. , $BC = 3$ cm. , then $m(\angle B) \dots\dots\dots m(\angle A)$
 (a) $>$ (b) $<$ (c) $=$ (d) \leq
- 2 The length of the side opposite to the angle of measure 30° in the right-angled triangle equals $\dots\dots\dots$ the length of the hypotenuse.
 (a) half (b) twice (c) third (d) quarter
- 3 In $\triangle ABC$, if $m(\angle A) = 100^\circ$ and $AB = AC$, then $m(\angle ABC) = \dots\dots\dots$
 (a) 80° (b) 60° (c) 40° (d) 30°
- 4 The point of intersection of the medians of the triangle divides each of them in the ratio $\dots\dots\dots$ from the base.
 (a) $1 : 3$ (b) $3 : 1$ (c) $1 : 2$ (d) $2 : 1$
- 5 If $\triangle ABD$ is obtuse-angled at B and C is the midpoint of \overline{BD} , then the longest side is $\dots\dots\dots$
 (a) \overline{AB} (b) \overline{AC} (c) \overline{AD} (d) \overline{BD}
- 6 The triangle whose side lengths are 2 cm. , $(X + 3)$ cm. and 5 cm. , becomes an isosceles triangle when $X = \dots\dots\dots$ cm.
 (a) 1 (b) 2 (c) 3 (d) 4

2 Complete :

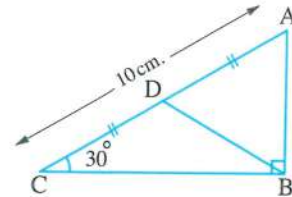
- 1 The median of an isosceles triangle from the vertex angle bisects $\dots\dots\dots$ and is perpendicular to $\dots\dots\dots$
- 2 The measure of the exterior angle at any vertex of the equilateral triangle is $\dots\dots\dots^\circ$
- 3 The base angles of the isosceles triangle are $\dots\dots\dots$
- 4 ABC is a triangle in which $AB = 4$ cm. , $BC = 6$ cm. , then $AC \in] \dots\dots\dots , \dots\dots\dots [$
- 5 The longest side in the right-angled triangle is $\dots\dots\dots$

- 3 [a] In $\triangle ABC$, if $m(\angle A) = (6x)^\circ$, $m(\angle B) = (4x - 9)^\circ$ and $m(\angle C) = 3(x - 2)^\circ$, arrange the side lengths of $\triangle ABC$ ascendingly.

[b] In the opposite figure :

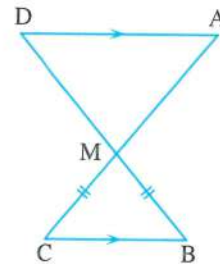
$m(\angle ABC) = 90^\circ$, $m(\angle C) = 30^\circ$
 $AD = DC$ and $AC = 10$ cm.

Find : The perimeter of $\triangle ABD$



- 4 [a] In the opposite figure :

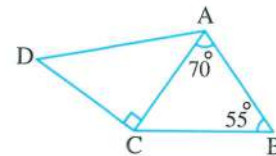
If $\overline{AC} \cap \overline{BD} = \{M\}$
 $\overline{AD} \parallel \overline{BC}$ and $MB = MC$
 , prove that :
 $\triangle MAD$ is isosceles.



[b] In the opposite figure :

$m(\angle BAC) = 70^\circ$, $m(\angle B) = 55^\circ$
 and $m(\angle ACD) = 90^\circ$

Prove that : $AD > AB$



- 5 [a] In the opposite figure :

$m(\angle D) = 40^\circ$, $DA = DC$
 and $\triangle ABC$ is equilateral

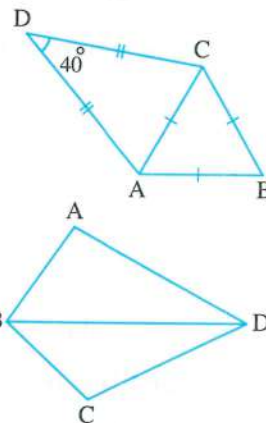
Find : $m(\angle DCB)$

[b] In the opposite figure :

$AB < AD$ and $BC < CD$

Prove that :

$m(\angle ABC) > m(\angle ADC)$



13 Damietta Governorate



Damietta Education Zone
 Inspector of Math


Answer the following questions :

- 1 Complete each of the following :

- 1 If the measure of one of the base angles of an isosceles triangle equals 50° , then the measure of the vertex angle equals $^\circ$
- 2 The supplementary of the obtuse angle is angle.

- 3 The longest side in the right-angled triangle is
- 4 The perpendicular straight line on a line segment from its midpoint is called
- 5 If 4 cm. , 7 cm. are the lengths of two sides in a triangle , then < the length of the third side <

2 Choose the correct answer :

- 1 The point of intersection of the medians of the triangle divides each of them in the ratio of from the base.
 (a) 1 : 2 (b) 2 : 1 (c) 1 : 1 (d) 1 : 3
- 2 In $\triangle ABC$, if $m(\angle B) = 70^\circ$, $m(\angle C) = 50^\circ$, then AB AC
 (a) > (b) < (c) = (d) \geq
- 3 The number of the quadrilaterals in the figure  is
 (a) 3 (b) 4 (c) 5 (d) 6
- 4 In the right-angled triangle , the length of the median from the vertex of the right angle equals the length of the hypotenuse.
 (a) $\frac{1}{2}$ (b) double (c) $\frac{1}{3}$ (d) $\frac{1}{4}$
- 5 The sum of the measures of the accumulative angles at a point equals°
 (a) 90 (b) 180 (c) 360 (d) 308
- 6 The number of lines of symmetry of $\triangle ABC$ in which $AB = AC$, $m(\angle B) = 60^\circ$ is
 (a) 3 (b) 2 (c) 1 (d) zero

3 [a] In the opposite figure :

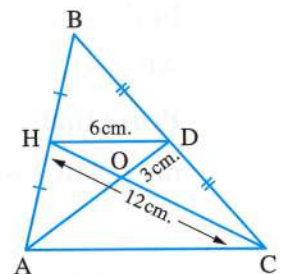
$HD = 6$ cm. , $HC = 12$ cm.

, H is the midpoint of \overline{AB}

and D is the midpoint of \overline{BC}

, $DO = 3$ cm.

Calculate : The perimeter of the triangle AOC

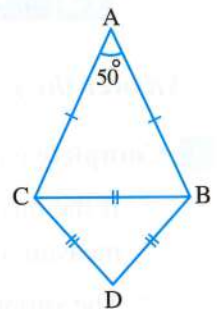


[b] In the opposite figure :

$AB = AC$, $m(\angle A) = 50^\circ$

$\triangle CDB$ is equilateral.

Find with proof : $m(\angle ABD)$



4 [a] In the opposite figure :

$$AB = AC, BD < CD$$

Prove that :

$$m(\angle ABD) > m(\angle ACD)$$

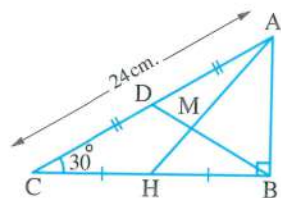
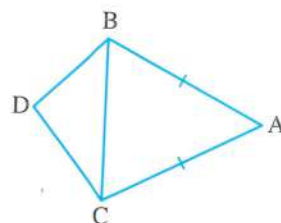
[b] In the opposite figure :

$\triangle ABC$ is right-angled at B

, \overline{AH} , \overline{BD} are two medians

$$, m(\angle C) = 30^\circ, AC = 24 \text{ cm.}$$

Find : The length of each of \overline{AB} , \overline{BD} , \overline{BM}



5 [a] In the opposite figure :

\overline{BD} bisects $\angle ABC$

, $\overline{HD} \parallel \overline{BC}$

Prove that :

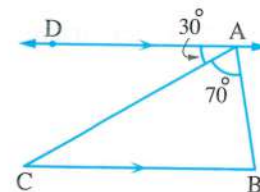
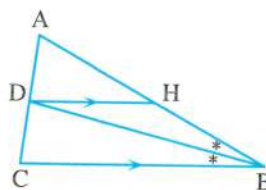
$\triangle HBD$ is an isosceles triangle.

[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $m(\angle BAC) = 70^\circ$

$$, m(\angle DAC) = 30^\circ$$

Prove that : $AC > BC$



14 El-Fayoum Governorate



East El-Fayoum Zone
El-Eman Language School

Answer the following questions :

1 Choose the correct answer from those given :

1 In $\triangle ABC$, if $(AB)^2 = (BC)^2 - (AC)^2$, $m(\angle C) = 42^\circ$, then $m(\angle B) = \dots\dots\dots$

- (a) 40° (b) 90° (c) 48° (d) 110°

2 The scalene triangle has $\dots\dots\dots$ axes of symmetry.

- (a) 3 (b) 2 (c) 1 (d) 0

3 If A lies on the axis of symmetry of \overline{BC} , then $AB \dots\dots\dots AC$

- (a) $<$ (b) $>$ (c) $=$ (d) \leq

- 4 If \overline{AD} is a median of $\triangle ABC$, M is the point of concurrence of the medians, then $MD = \dots\dots\dots AD$
 (a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{1}{2}$ (d) $\frac{1}{4}$
- 5 If 10 cm., 5 cm. and x cm. are side lengths of an isosceles triangle, then $x = \dots\dots\dots$ cm.
 (a) 5 (b) 10 (c) 15 (d) 4
- 6 The measure of the exterior angle of the equilateral triangle equals $\dots\dots\dots$
 (a) 60° (b) 90° (c) 50° (d) 120°

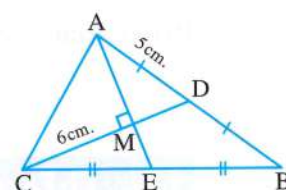
2 Complete the following :

- 1 The total area of a cuboid = 120 cm^2 and its lateral area = 96 cm^2 , then the area of its base equals $\dots\dots\dots \text{ cm}^2$
- 2 The base angles of the isosceles triangle are $\dots\dots\dots$
- 3 ABC is a right-angled triangle at B , $m(\angle C) = 30^\circ$, $AB = 5 \text{ cm}$, then $AC = \dots\dots\dots \text{ cm}$.
- 4 In $\triangle ABC$, if $m(\angle C) = 30^\circ$, $m(\angle A) = 70^\circ$, then the smallest side in length is $\dots\dots\dots$
- 5 In any triangle, if the lengths of two sides are not equal, then the greater side in length is opposite to $\dots\dots\dots$

3 [a] In the opposite figure :

M is the concurrence point of the medians of $\triangle ABC$,
 $\overline{AM} \perp \overline{CD}$, $AD = 5 \text{ cm}$, $MC = 6 \text{ cm}$.

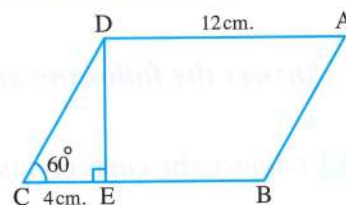
Find with proof : The length of \overline{ME}



[b] In the opposite figure :

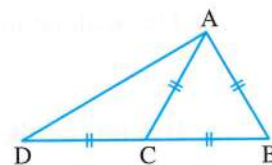
$ABCD$ is a parallelogram
 $m(\angle C) = 60^\circ$, $\overline{DE} \perp \overline{BC}$
 $AD = 12 \text{ cm}$, $CE = 4 \text{ cm}$.

Find with proof : The perimeter of the parallelogram $ABCD$



4 [a] In the opposite figure :

ABC is an equilateral triangle
 $D \in \overline{BC}$, $BC = CD$
 Prove that : $\overline{AB} \perp \overline{AD}$



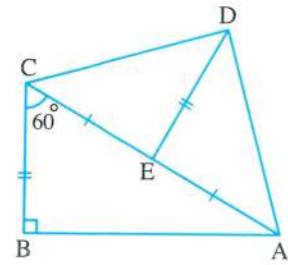
[b] In the opposite figure :

ABC is a right-angled triangle at B

, $m(\angle ACB) = 60^\circ$, E is the midpoint of \overline{AC}

, $DE = BC$

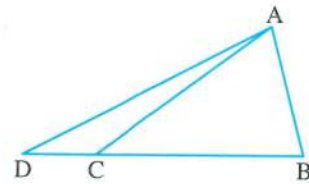
Prove that : $m(\angle ADC) = 90^\circ$



5 [a] In the opposite figure :

$C \in \overline{BD}$, $AC > AB$

Prove that : $m(\angle B) > m(\angle D)$

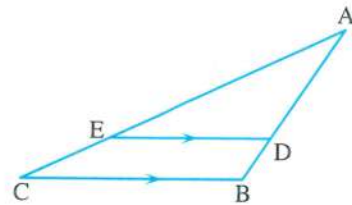


[b] In the opposite figure :

ABC is an obtuse-angled triangle at B

, $\overline{DE} \parallel \overline{BC}$

Prove that : $AE > AD$



15 Luxor Governorate



Armant Educational Directorate
Mohamed Raafat Lang. Sch.

Answer the following questions :

1 Complete the following :

- 1 In the right-angled triangle , the is the longest side.
- 2 In $\triangle ABC$, if D is the midpoint of \overline{BC} and $AD = \frac{1}{2} BC$, then $m(\angle A) = \dots\dots\dots^\circ$
- 3 In $\triangle ABC$, if $m(\angle B) = 65^\circ$ and $m(\angle C) = 50^\circ$, then the shortest side in $\triangle ABC$ is
- 4 In $\triangle ABC$, if the point X is the midpoint of \overline{BC} , then \overline{AX} is called
- 5 The measure of the exterior angle of the equilateral triangle is

2 Choose the correct answer :

- 1 In $\triangle ABC$, if $m(\angle B) > m(\angle C)$, then
 (a) $AB < AC$ (b) $AB = AC$ (c) $AB > AC$ (d) $\overline{AB} \equiv \overline{AC}$
- 2 The point of concurrence of the medians of the triangle divides each median in the ratio of from the base.
 (a) 1 : 2 (b) 1 : 3 (c) 2 : 1 (d) 3 : 1

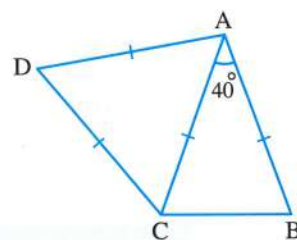
- 3 The lengths of two sides in a triangle are 4 cm. , 9 cm. and it has one axis of symmetry , then the length of the third side is cm.
 (a) 4 (b) 5 (c) 9 (d) 13
- 4 The number of axes of symmetry of the equilateral triangle equals
 (a) 0 (b) 1 (c) 2 (d) 3
- 5 If $\triangle ABC$ is right-angled at B , $AB = 6$ cm. , $BC = 8$ cm. , then the length of the median drawn from B is cm.
 (a) 10 (b) 8 (c) 6 (d) 5
- 6 The lengths which can be lengths of sides of a triangle are
 (a) 0 , 3 , 5 (b) 3 , 3 , 5 (c) 3 , 3 , 6 (d) 3 , 3 , 7

3 [a] In the opposite figure :

$$AB = AC = AD = CD$$

$$, m(\angle BAC) = 40^\circ$$

Find : $m(\angle BCD)$



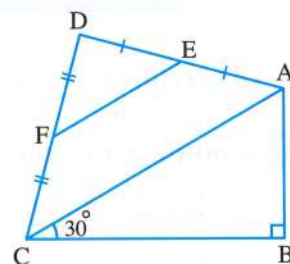
[b] In the opposite figure :

$$m(\angle B) = 90^\circ , m(\angle ACB) = 30^\circ$$

, E is the midpoint of \overline{AD}

, F is the midpoint of \overline{CD}

Prove that : $AB = EF$



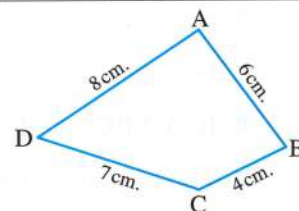
4 [a] In the opposite figure :

ABCD is a quadrilateral in which :

$$AB = 6 \text{ cm. , } BC = 4 \text{ cm.}$$

$$, CD = 7 \text{ cm. , } DA = 8 \text{ cm.}$$

Prove that : $m(\angle BCD) > m(\angle BAD)$



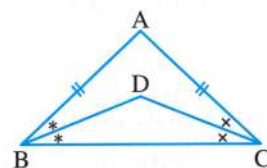
[b] In the opposite figure :

ABC is a triangle in which :

$$AB = AC , \overrightarrow{BD} \text{ bisects } \angle ABC$$

$$, \overrightarrow{CD} \text{ bisects } \angle ACB$$

Prove that : $\triangle DBC$ is an isosceles triangle.

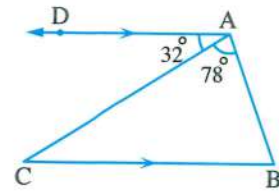


5 [a] In the opposite figure :

$\overrightarrow{AD} \parallel \overrightarrow{BC}$, $m(\angle BAC) = 78^\circ$

, $m(\angle CAD) = 32^\circ$

Prove that : $AC > AB$



[b] In the opposite figure :

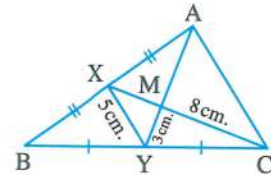
ABC is a triangle , X is the midpoint of \overline{AB}

, Y is the midpoint of \overline{BC}

, $\overline{XC} \cap \overline{AY} = \{M\}$, $XY = 5$ cm.

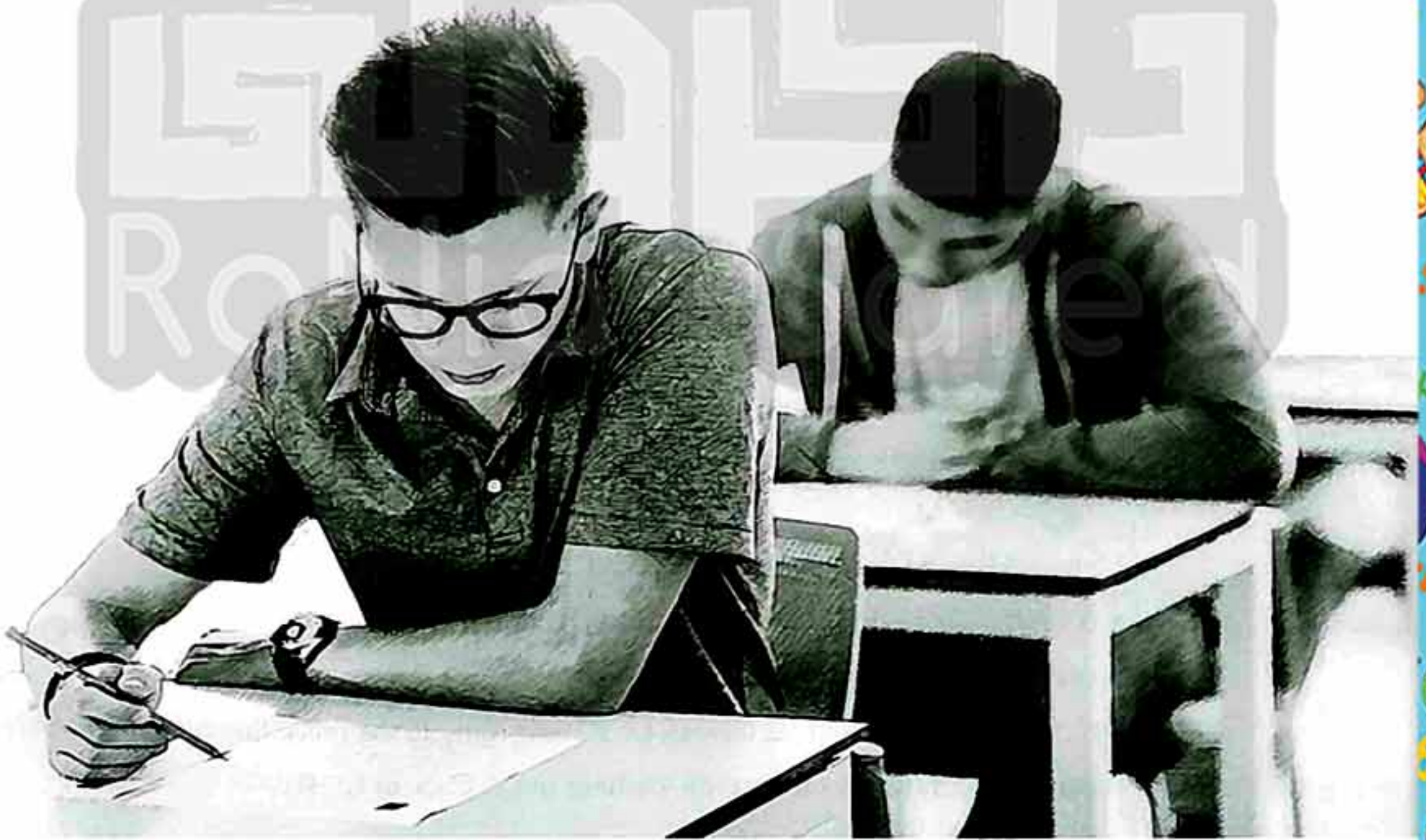
, $CM = 8$ cm. , $YM = 3$ cm.

Find : The perimeter of $\triangle MAC$



Final Examinations

on Geometry



هذا العمل خاص بموقع ذاكرولي التعليمي ولا يسمح بتداوله على مواقع أخرى

Model Examinations of the School Book



on Geometry

Model 1

Answer the following questions :

1 Complete the following :

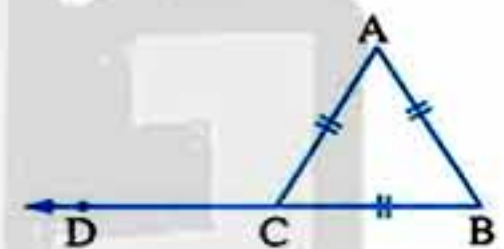
- 1 The longest side in the right-angled triangle is
- 2 If the lengths of two sides in a triangle are 2 cm. and 7 cm. , then :
..... < the length of the third side <
- 3 If the measures of two angles in a triangle are different , then the greater in measure of them is opposite to
- 4 If the length of the median drawn from a vertex of a triangle equals half the opposite side to this vertex in length , then
- 5 If the measure of an angle in the isosceles triangle equals 60° , then the triangle is

2 Choose the correct answer from those given :

1 In the opposite figure :

$\triangle ABC$ is equilateral , then $m(\angle ACD) = \dots\dots\dots$

- (a) 45° (b) 60°
(c) 120° (d) 135°

2 In $\triangle ABC$ which is right-angled at B , if $AC = 20$ cm. , then the length of the median of the triangle drawn from B equals

- (a) 10 cm. (b) 8 cm. (c) 6 cm. (d) 5 cm.

3 XYZ is a triangle in which : $m(\angle Z) = 70^\circ$ and $m(\angle Y) = 60^\circ$, then $YZ \dots\dots\dots XY$

- (a) > (b) < (c) = (d) twice

4 The lengths which can be lengths of sides of a triangle are

- (a) 0 , 3 , 5 (b) 3 , 3 , 5 (c) 3 , 3 , 6 (d) 3 , 3 , 7

5 The triangle in which the measures of two angles of it are 42° and 69° is

- (a) an isosceles triangle. (b) an equilateral triangle.
(c) a scalene triangle. (d) a right-angled triangle.

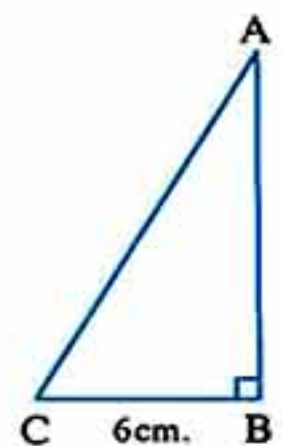
6 In the opposite figure :

$m(\angle C) = 2 m(\angle A)$

, $BC = 6$ cm.

, then $AC = \dots\dots\dots$ cm.

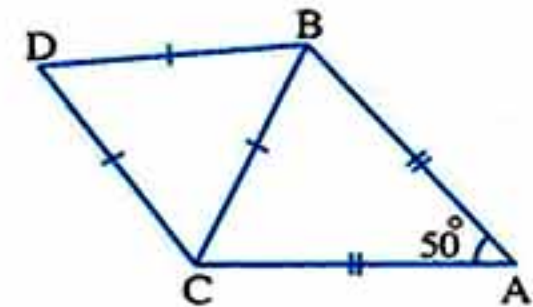
- (a) 3 (b) 6
(c) 9 (d) 12



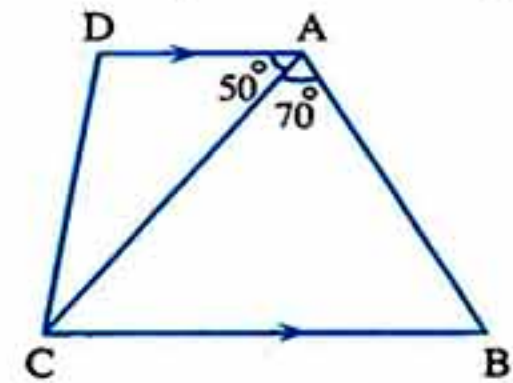
Geometry

3 [a] Complete : ABC is a triangle in which $AB > AC$, then $m(\angle C) \dots\dots\dots m(\angle B)$

[b] In the opposite figure :
 $m(\angle A) = 50^\circ$, $AB = AC$
 and $\triangle DBC$ is equilateral
 Find : $m(\angle ABD)$

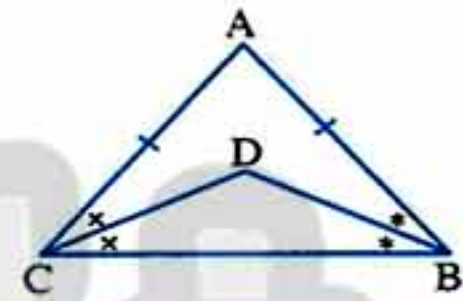


[c] In the opposite figure :
 $\overline{AD} \parallel \overline{BC}$
 $m(\angle BAC) = 70^\circ$
 and $m(\angle DAC) = 50^\circ$
 Prove that : $BC > AC$



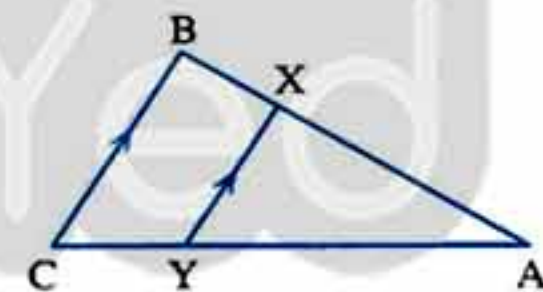
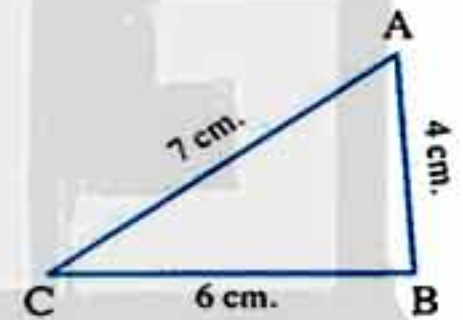
4 [a] Prove that : The two base angles of the isosceles triangle are congruent.

[b] In the opposite figure :
 $AB = AC$, \overline{BD} bisects $\angle B$
 and \overline{CD} bisects $\angle C$
 Prove that : $\triangle DBC$ is isosceles.



5 [a] In the opposite figure :
 Arrange the angles
 of $\triangle ABC$ descendingly
 due to their measures

[b] In the opposite figure :
 $AB > BC$, $\overline{XY} \parallel \overline{BC}$
 Prove that : $AX > XY$



Model 2

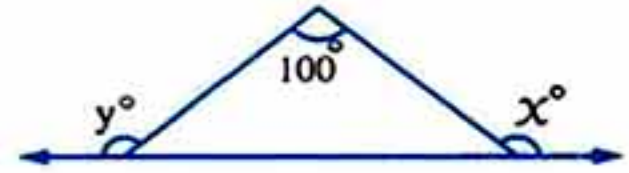
Answer the following questions :

1 Choose the correct answer from those given :

- 1 The triangle which has three axes of symmetry is triangle.
 (a) scalene (b) isosceles (c) right-angled (d) equilateral
- 2 The sum of lengths of two sides in a triangle is the length of the third side.
 (a) greater than (b) smaller than (c) equals to (d) twice
- 3 If the lengths of two sides in an isosceles triangle are 8 cm. and 4 cm. , then the length of the third side is cm.
 (a) 4 (b) 8 (c) 3 (d) 12

Final Examinations

- 4 In $\triangle ABC$ if $m(\angle B) = 130^\circ$, then the longest side of it is
 (a) \overline{BC} (b) \overline{AC} (c) \overline{AB} (d) its median.
- 5 $\triangle XYZ$ is an isosceles triangle in which : $m(\angle X) = 100^\circ$, then $m(\angle Y) = \dots\dots\dots$
 (a) 100° (b) 80° (c) 60° (d) 40°
- 6 In the opposite figure :
 $x + y = \dots\dots\dots$
 (a) 100° (b) 140°
 (c) 180° (d) 280°

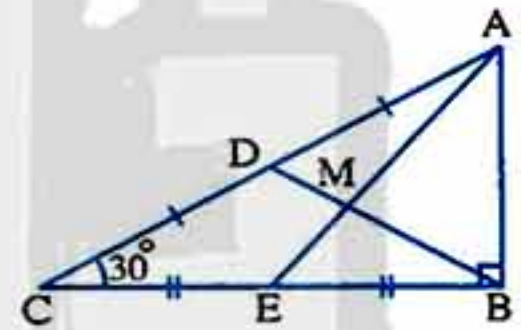


2 Complete the following :

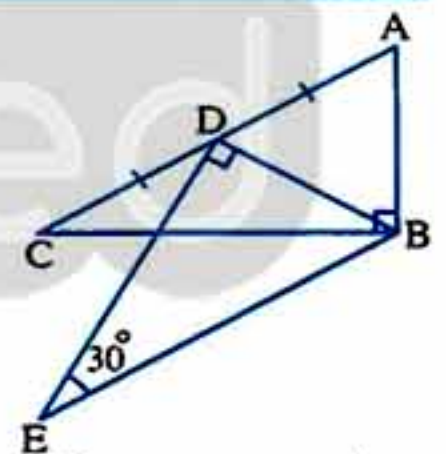
- 1 If the measure of an angle in a right-angled triangle is 45° , then the triangle is
 2 The length of any side in a triangle the sum of lengths of the two other sides.
 3 If $\overline{AB} \equiv \overline{XY}$, then $AB = \dots\dots\dots$
 4 In $\triangle ABC$, if $m(\angle A) = 30^\circ$ and $m(\angle B) = 90^\circ$, then $BC = \dots\dots\dots AC$
 5 The axis of symmetry of a line segment is the straight line which at its midpoint.

- 3 [a] In $\triangle ABC$: $AB = 7$ cm. , $BC = 5$ cm. and $AC = 6$ cm.
 Arrange its angles ascendingly due to their measures.

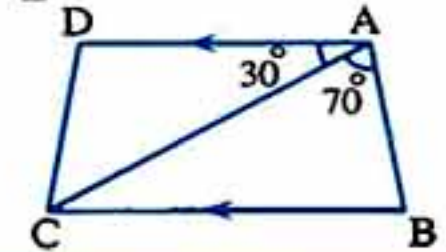
- [b] In the opposite figure :
 $\triangle ABC$ is right-angled at B
 $m(\angle C) = 30^\circ$, D is the midpoint of \overline{AC}
 E is the midpoint of \overline{BC} , $AC = 9$ cm.
 Find the length of each of : \overline{BD} , \overline{BM} and \overline{AB}



- 4 [a] In the opposite figure :
 $m(\angle ABC) = m(\angle BDE) = 90^\circ$
 $m(\angle E) = 30^\circ$
 D is the midpoint of \overline{AC}
 Prove that : $AC = BE$

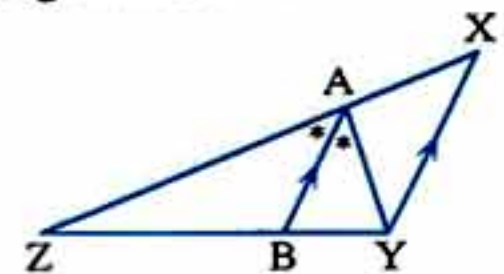


- [b] In the opposite figure :
 $\overline{AD} \parallel \overline{BC}$, $m(\angle BAC) = 70^\circ$
 $m(\angle DAC) = 30^\circ$
 Prove that : $AC > BC$



- 5 [a] Complete :
 If the measures of two angles of a triangle are different, then their greater in measure is opposite to

- [b] In the opposite figure :
 $\overline{AB} \parallel \overline{XY}$ and \overline{AB} bisects $\angle YAZ$
 Prove that : $XZ > YZ$



Geometry

Model for the merge students

Answer the following questions :

1 Complete each of the following :

- 1 The point of concurrence of the medians of the triangle divides each median in the ratio : from the base.
- 2 In the right-angled triangle , the length of the median drawn from the vertex of the right angle equals
- 3 The base angles of the isosceles triangle are
- 4 In $\triangle ABC$: $m(\angle B) = 70^\circ$, $m(\angle C) = 50^\circ$, then AC AB
- 5 The median of the isosceles triangle from the vertex angle ,

2 Choose the correct answer from those given :

- 1 If ABC is an equilateral triangle , then $m(\angle B) =$
 (a) 30° (b) 60° (c) 70° (d) 90°
- 2 The length of the side opposite to the angle of measure 30° in the right-angled triangle equals the length of the hypotenuse.
 (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{1}{4}$ (d) 2
- 3 If the measure of the vertex angle of an isosceles triangle is 80° , then the measure of one of the base angles equals
 (a) 60° (b) 40° (c) 30° (d) 50°
- 4 The number of axes of symmetry of the isosceles triangle is
 (a) 1 (b) 2 (c) 3 (d) zero
- 5 In $\triangle ABC$: $m(\angle A) = 50^\circ$, $m(\angle B) = 60^\circ$, then the longest side is
 (a) \overline{AB} (b) \overline{BC} (c) \overline{AC}

3 In the opposite figure , complete :

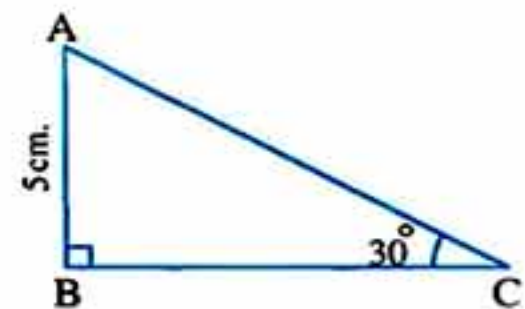
$\triangle ABC$ is a right-angled triangle at B , $m(\angle C) = 30^\circ$, $AB = 5$ cm.

Find : The length of \overline{AC}

$$\therefore m(\angle B) = \dots\dots\dots , m(\angle C) = \dots\dots\dots$$

$$\therefore AB = \frac{1}{2} \times \dots\dots\dots$$

$$\therefore AC = \dots\dots\dots \text{ cm.}$$



Final Examinations

- 4 [a] In $\triangle ABC$: $m(\angle A) = 40^\circ$, $m(\angle B) = 75^\circ$, $m(\angle C) = 65^\circ$

Arrange the lengths of the sides of the triangle descendingly.

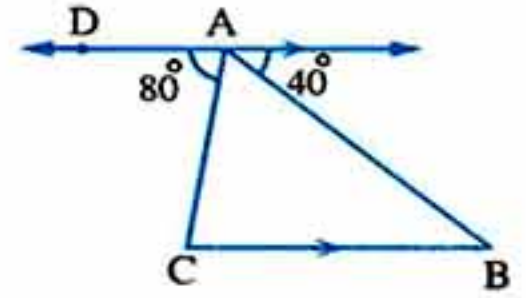
The order is : , ,

- [b] In the opposite figure :

$$\overrightarrow{AD} \parallel \overrightarrow{BC}$$

Complete :

- 1 $m(\angle B) = \dots\dots\dots^\circ$
- 2 The side is the longest side of $\triangle ABC$



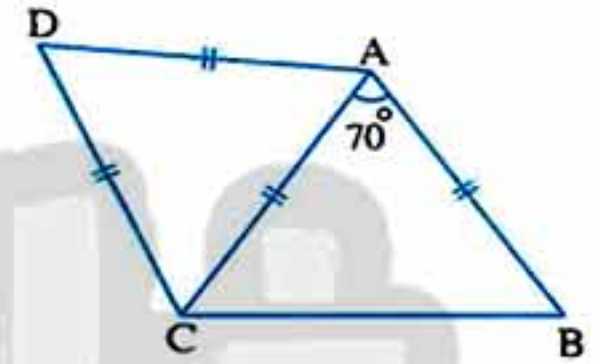
- 5 In the opposite figure :

$$AB = AC = CD = AD = 10 \text{ cm.}$$

$$, m(\angle BAC) = 70^\circ$$

Put (✓) or (✗) :

- 1 $m(\angle B) = 55^\circ$ ()
- 2 $m(\angle D) = 70^\circ$ ()
- 3 $m(\angle DCB) = 120^\circ$ ()
- 4 $AB + AD = 20 \text{ cm.}$ ()
- 5 $AB + BC = BC + CD$ ()



Some Schools Examinations



on Geometry

1

Cairo Governorate

Centre Cairo Educative Zone
Saint Joseph College Khoronfish

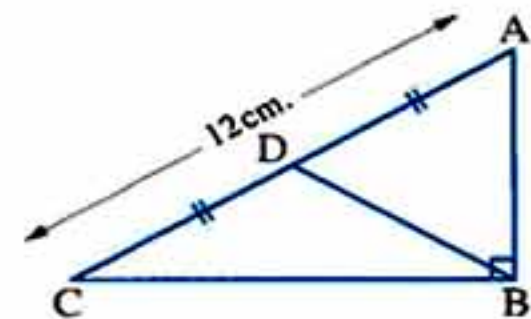
Answer the following questions :

1 Choose the correct answer from the given ones :

- 1 In $\triangle ABC$, if $AB = 6$ cm. and $AC = 7$ cm. , then $BC \in \dots\dots\dots$
 (a) $]6 , 13]$ (b) $[6 , 7]$ (c) $]1 , 13[$ (d) $[1 , 7[$
- 2 The point of intersection of the medians of the triangle divides each of them in the ratio of $\dots\dots\dots$ from the vertex.
 (a) $1 : 2$ (b) $1 : 3$ (c) $2 : 1$ (d) $2 : 3$
- 3 The measure of any exterior angle of the equilateral triangle equals $\dots\dots\dots^\circ$
 (a) 60 (b) 100 (c) 120 (d) 150
- 4 In $\triangle ABC$, if \overline{AD} is a median , M is the point of intersection of its medians , then $AM = \dots\dots\dots AD$
 (a) $\frac{1}{2}$ (b) 2 (c) $\frac{2}{3}$ (d) $\frac{3}{2}$
- 5 $\triangle XYZ$ is an isosceles triangle in which $m(\angle X) = 110^\circ$, then $m(\angle Y) = \dots\dots\dots^\circ$
 (a) 110 (b) 35 (c) 60 (d) 45
- 6 In $\triangle ABC$, if $\overline{AB} \perp \overline{BC}$ and $AB = BC$, then $m(\angle A) = \dots\dots\dots^\circ$
 (a) 30 (b) 45 (c) 60 (d) 90

2 Complete the following :

- 1 The number of axes of symmetry of the equilateral triangle equals $\dots\dots\dots$
- 2 The base angles in an isosceles triangle are $\dots\dots\dots$
- 3 The longest side in the right-angled triangle is $\dots\dots\dots$
- 4 The bisector of the vertex angle of the isosceles triangle $\dots\dots\dots$
- 5 In the opposite figure :

AC = 12 cm. , then BD = $\dots\dots\dots$ cm.

- 3 [a] In $\triangle ABC$, if $m(\angle A) = (6x)^\circ$, $m(\angle B) = (4x - 9)^\circ$

and $m(\angle C) = 3(x - 2)^\circ$

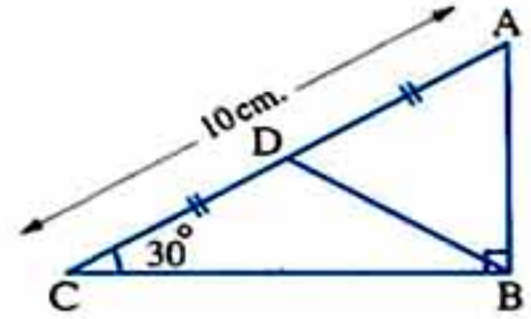
Arrange the side lengths of $\triangle ABC$ ascendingly.

- [b] In the opposite figure :

$m(\angle ABC) = 90^\circ$, $m(\angle C) = 30^\circ$

, $AD = DC$ and $AC = 10$ cm.

Find : The perimeter of $\triangle ABD$



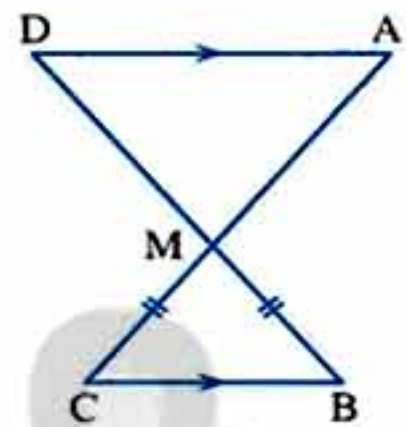
- 4 [a] In the opposite figure :

If $\overline{AC} \cap \overline{BD} = \{M\}$

, $\overline{AD} \parallel \overline{BC}$ and $MB = MC$

, prove that :

$\triangle MAD$ is isosceles.

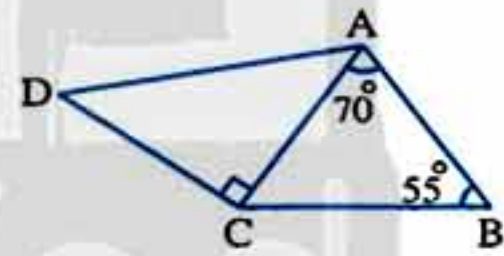


- [b] In the opposite figure :

$m(\angle BAC) = 70^\circ$, $m(\angle B) = 55^\circ$

and $m(\angle ACD) = 90^\circ$

Prove that : $AD > AB$



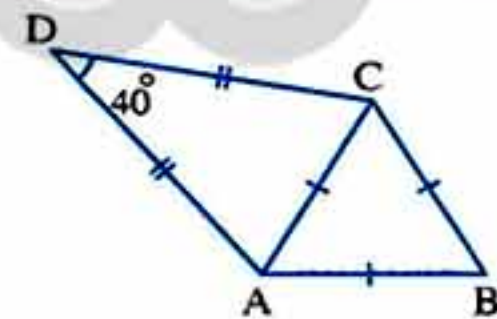
- 5 [a] In the opposite figure :

$m(\angle D) = 40^\circ$

, $DA = DC$

and $\triangle ABC$ is an equilateral triangle.

Find : $m(\angle DCB)$

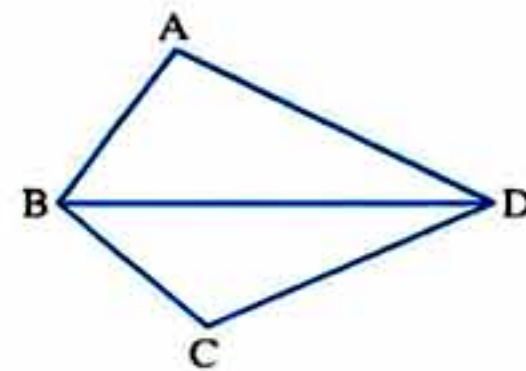


- [b] In the opposite figure :

$AB < AD$ and $BC < CD$

Prove that :

$m(\angle ABC) > m(\angle ADC)$



Geometry

2

Cairo Governorate

Hadeik El-Kobba Educational Zone



Answer the following questions :

1 Complete :

- 1 The median of an isosceles triangle from the vertex angle bisects and is perpendicular to
- 2 The measure of the exterior angle at any vertex of the equilateral triangle is°
- 3 The base angles of the isosceles triangle are
- 4 ABC is a triangle in which $AB = 4$ cm. , $BC = 6$ cm. , then $AC \in]$,[
- 5 The longest side in the right-angled triangle is

2 Choose the correct answer :

- 1 In $\triangle ABC$, if $AC = 4$ cm. , $BC = 3$ cm. , then $m(\angle B)$ $m(\angle A)$
 (a) $>$ (b) $<$ (c) $=$ (d) \leq
- 2 The length of the side opposite to the angle of measure 30° in the right-angled triangle equals the length of the hypotenuse.
 (a) half (b) twice (c) third (d) quarter
- 3 In $\triangle ABC$, if $m(\angle A) = 100^\circ$ and $AB = AC$, then $m(\angle ABC) =$
 (a) 80° (b) 60° (c) 40° (d) 30°
- 4 The point of intersection of the medians of the triangle divides each of them in the ratio from the base.
 (a) $1 : 3$ (b) $3 : 1$ (c) $1 : 2$ (d) $2 : 1$
- 5 If $\triangle ABD$ is obtuse-angled at B and C is the midpoint of \overline{BD} , then the longest side is
 (a) \overline{AB} (b) \overline{AC} (c) \overline{AD} (d) \overline{BD}
- 6 The triangle whose side lengths are 2 cm. , $(x + 3)$ cm. and 5 cm. becomes an isosceles triangle when $x =$ cm.
 (a) 1 (b) 2 (c) 3 (d) 4

Final Examinations

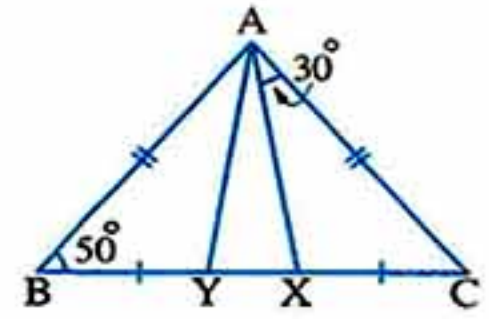
3 [a] In the opposite figure :

ABC is a triangle , $AB = AC$, $XC = YB$

, $m(\angle B) = 50^\circ$, $m(\angle CAX) = 30^\circ$

1 Prove that : $\triangle AXY$ is an isosceles triangle.

2 Find : $m(\angle AYB)$

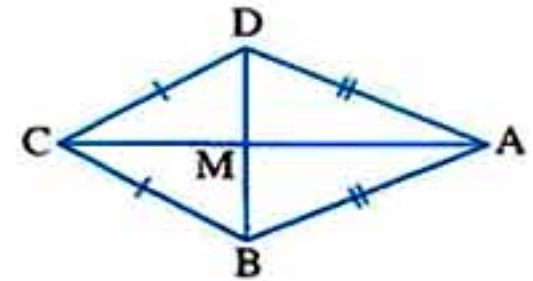


[b] In the opposite figure :

$\overline{BD} \cap \overline{AC} = \{M\}$

, $AB = AD$ and $BC = DC$

Prove that : M is the midpoint of \overline{BD}



4 [a] In the opposite figure :

ABC is a triangle in which $AB > AC$, \overline{BD} bisects $\angle ABC$

, \overline{CD} bisects $\angle ACB$

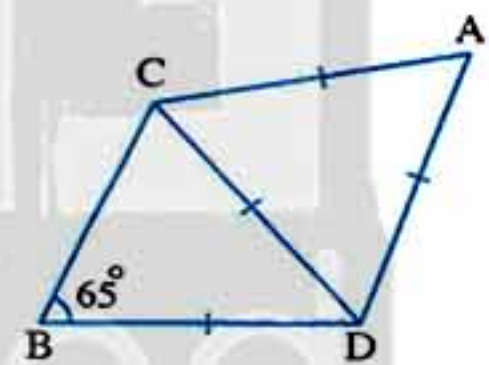
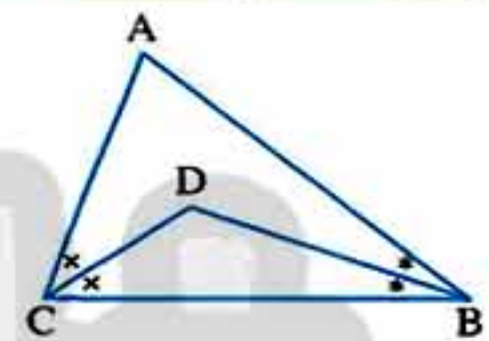
Prove that : $BD > CD$

[b] In the opposite figure :

$AD = DC = AC = BD$

, $m(\angle B) = 65^\circ$

Find with proof : $m(\angle BDA)$



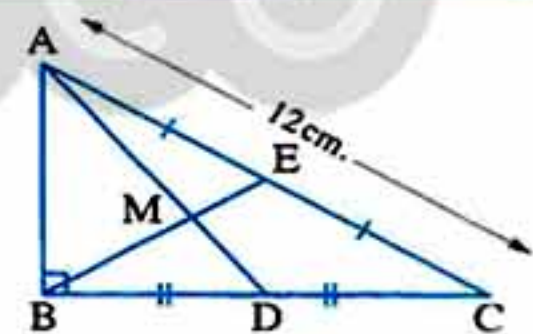
5 [a] In the opposite figure :

$\triangle ABC$ is right-angled at B

, E and D are the midpoints of \overline{AC} and \overline{BC} respectively

, $AC = 12$ cm.

Find the length of each of : \overline{BE} and \overline{ME}



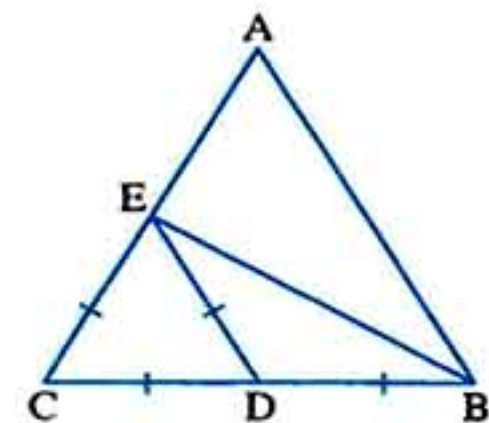
[b] In the opposite figure :

ABC is a triangle , $D \in \overline{BC}$ and $E \in \overline{AC}$

such that $BD = CD = CE = DE$

Prove that : 1 $BC > BE$

2 $AB + BD > AE$



Geometry

3

Cairo Governorate

Rod El-Farag Educational Zone
S.T. Mary's School

Answer the following questions :

1 Choose the correct answer from the given ones :

- 1 In the triangle XYZ , if $m(\angle Z) = 70^\circ$ and $m(\angle Y) = 60^\circ$, then YZ XY
(a) > (b) = (c) < (d) twice
- 2 The measure of the exterior angle of the equilateral triangle equals
(a) 45° (b) 60° (c) 90° (d) 120°
- 3 The intersection point of the medians of a triangle divides each of them from the direction of the base in the ratio
(a) 1 : 2 (b) 2 : 1 (c) 1 : 3 (d) 2 : 3
- 4 ABCD is a rectangle , M is the point of intersection of its diagonals , if the length of the diagonal is 6 cm. , then the length of the median \overline{AM} equals cm.
(a) 3 (b) 6 (c) 9 (d) 12
- 5 ABC is an isosceles triangle where $AB = AC$ and $m(\angle A) = 100^\circ$, then $m(\angle B) =$
(a) 60° (b) 50° (c) 40° (d) 30°
- 6 The number of axes of symmetry of the isosceles triangle equals
(a) 0 (b) 1 (c) 2 (d) 3

2 Complete :

- 1 If the measures of two angles of a triangle are different , then the greater in measure is opposite to
- 2 The bisector of the vertex angle of the isosceles triangle ,
- 3 The base angles of the isosceles triangle are
- 4 In any triangle , the sum of the lengths of any two sides the length of the third side.
- 5 $\triangle ABC$ is right-angled at B , $m(\angle A) = 30^\circ$, $AC = 10$ cm. , then $CB =$ cm.

3 [a] ABC is a triangle in which $AB = AC$, \overline{BD} bisects $\angle ABC$, \overline{CD} bisects $\angle ACB$, $\overline{BD} \cap \overline{CD} = \{D\}$ Prove that : $\triangle DBC$ is an isosceles triangle.

Final Examinations

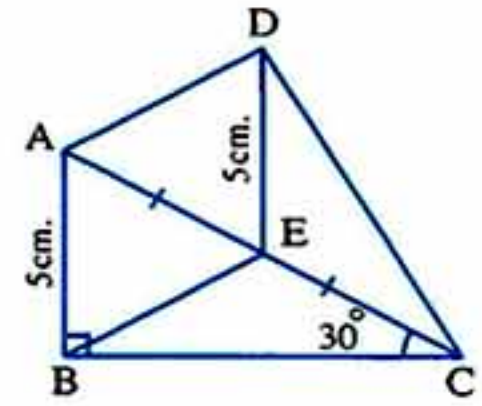
[b] In the opposite figure :

ABC is a right-angled triangle at B

, $m(\angle ACB) = 30^\circ$, $AB = 5$ cm.

, E is the midpoint of \overline{AC} , if $DE = 5$ cm.

, prove that : $m(\angle ADC) = 90^\circ$



4 [a] In the opposite figure :

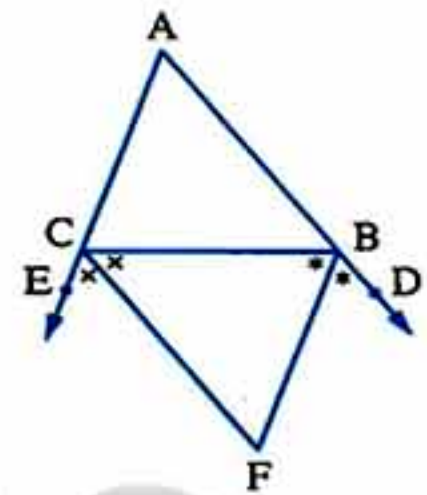
ABC is a triangle in which $AB > AC$, $D \in \overline{AB}$, $E \in \overline{AC}$

, \overline{BF} bisects $\angle DBC$, \overline{CF} bisects $\angle BCE$

, $\overline{BF} \cap \overline{CF} = \{F\}$

Prove that : 1 $m(\angle FBC) > m(\angle BCF)$

2 $CF > BF$

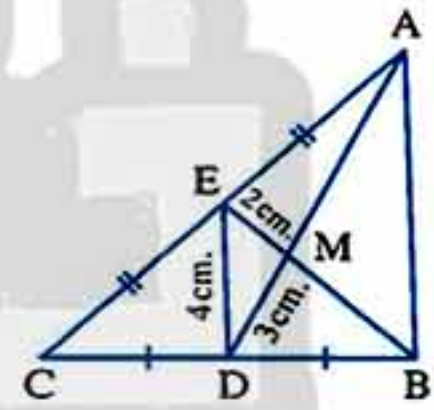


[b] In the opposite figure :

ABC is a triangle in which $ME = 2$ cm. , $MD = 3$ cm.

, $DE = 4$ cm. , D and E are the midpoints of \overline{BC} , \overline{AC} respectively

Find : The perimeter of $\triangle MAB$

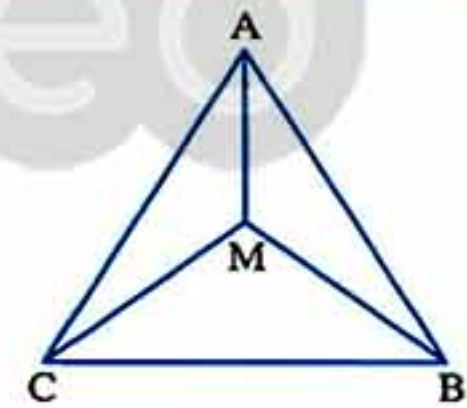


5 [a] In the opposite figure :

ABC is a triangle in which

M is a point inside it.

Prove that : $MA + MB + MC > \frac{1}{2}$ the perimeter of $\triangle ABC$



[b] In the opposite figure :

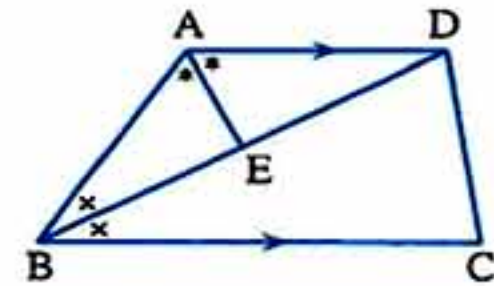
ABCD is a quadrilateral in which $\overline{AD} \parallel \overline{BC}$

, \overline{BD} bisects $\angle ABC$, \overline{AE} bisects $\angle BAD$

Prove that : 1 $AB = AD$

2 $\overline{AE} \perp \overline{BD}$

3 $BE = ED$



Geometry

4

Giza Governorate

Boulaq El Dakroul Directorate of Education
Dar El-Hanan Lang. Sch. for Girls

Answer the following questions :

1 Choose the correct answer :

- 1 The number of axes of symmetry of the isosceles triangle equals
(a) 3 (b) 2 (c) 1 (d) 0
- 2 The point of intersection of the medians of the triangle divides each of them in the ratio of from the base.
(a) 2 : 1 (b) 3 : 1 (c) 3 : 2 (d) 1 : 2
- 3 ΔXYZ is right-angled at Y , then XZ YZ
(a) $>$ (b) $<$ (c) $=$ (d) \leq
- 4 If 10 cm. , 5 cm. and x cm. are side lengths of an isosceles triangle , then $x =$
(a) 10 (b) 5 (c) 15 (d) 4
- 5 The measure of the exterior angle of an equilateral triangle equals°
(a) 30 (b) 60 (c) 90 (d) 120
- 6 In the opposite figure :
 $x + y =$
(a) 100° (b) 140°
(c) 180° (d) 280°



2 Complete the following :

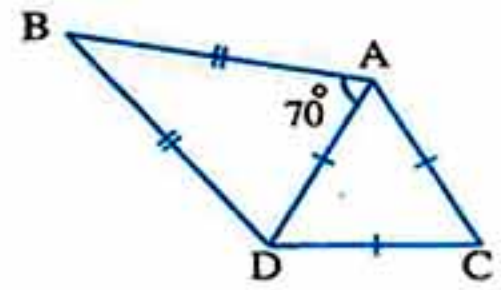
- 1 In ΔABC , if $m(\angle B) = 70^\circ$, $m(\angle C) = 50^\circ$, then AC AB
- 2 In ΔABC , if $m(\angle A) = m(\angle B) + m(\angle C)$, then the longest side is
- 3 The axis of symmetry of a line segment is the straight line which from its midpoint.
- 4 ABC is a triangle in which $AB = 4$ cm. , $CB = 7$ cm.
 , then $AC \in$] , [
- 5 If \overline{AD} is a median in ΔABC , and M is the point of intersection of its medians and $AM = 12$ cm. , then $AD =$

3 [a] In the opposite figure :

$$AB = BD, m(\angle BAD) = 70^\circ$$

, $\triangle ADC$ is an equilateral triangle.

Find : $m(\angle BDC)$

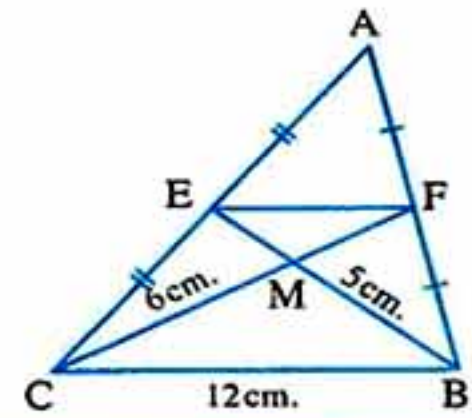


[b] In the opposite figure :

ABC is a triangle, F and E are the midpoints of \overline{AB} and \overline{AC} respectively.

If $BM = 5$ cm., $CM = 6$ cm., $BC = 12$ cm.

, then find : The perimeter of $\triangle MEF$



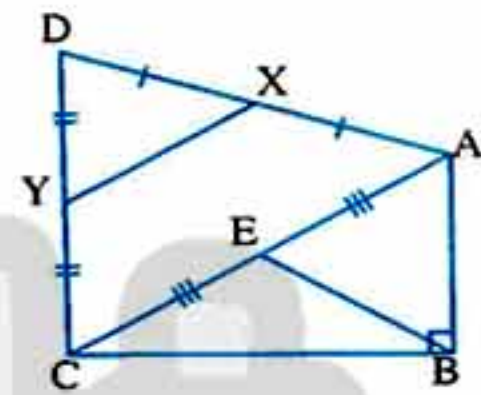
4 [a] In the opposite figure :

$$m(\angle ABC) = 90^\circ$$

, E is the midpoint of \overline{AC}

and X, Y are the midpoints of \overline{DA} and \overline{DC}

Prove that : $XY = BE$



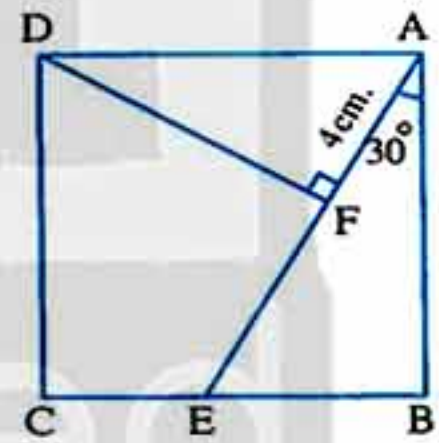
[b] In the opposite figure :

$ABCD$ is a square, $E \in \overline{BC}$

where $m(\angle BAE) = 30^\circ$ and $\overline{DF} \perp \overline{AE}$

, if $AF = 4$ cm.

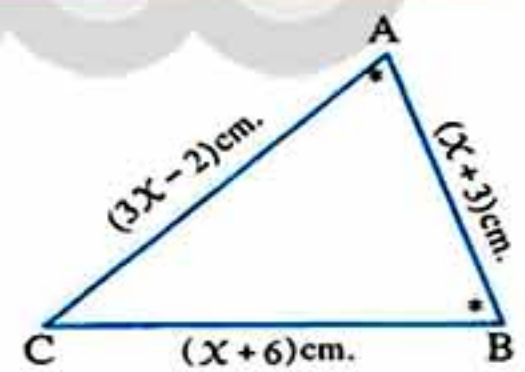
, calculate : The area of the square $ABCD$



5 [a] In the opposite figure :

$$m(\angle A) = m(\angle B)$$

Find : The perimeter of $\triangle ABC$



[b] In the opposite figure :

ABC is a triangle in which :

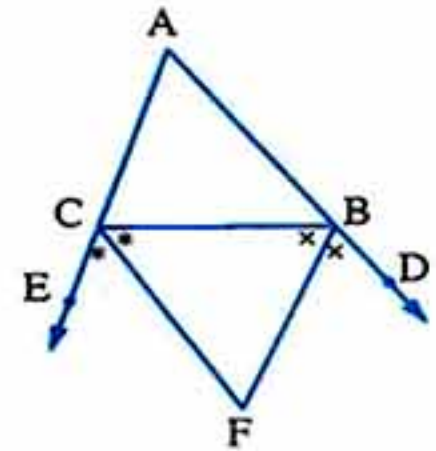
$$AB > AC, D \in \overline{AB}, E \in \overline{AC}$$

, \overline{BF} bisects $\angle DBC$, \overline{CF} bisects $\angle BCE$

$$\overline{BF} \cap \overline{CF} = \{F\}$$

Prove that : 1 $m(\angle FBC) > m(\angle BCF)$

$$2 CF > BF$$



Geometry

5

Giza Governorate

6th October Directorate
Om El-Moamneen Lang. School

Answer the following questions :

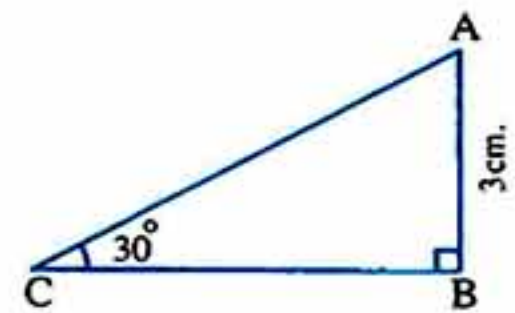
1 Choose the correct answer :

- 1 If ABC is an isosceles triangle , $m(\angle A) = 60^\circ$, $AB = 4$ cm.
 , then its perimeter = cm.
(a) 4 (b) 12 (c) 6 (d) 9
- 2 XYZ is a triangle in which $m(\angle Z) = 70^\circ$, $m(\angle Y) = 60^\circ$, then YZ XY
(a) $>$ (b) $<$ (c) $=$ (d) \geq
- 3 In $\triangle ABC$, if $m(\angle B) = 90^\circ$, then the longest side is
(a) \overline{BC} (b) \overline{AB} (c) \overline{AC} (d) its median.
- 4 A triangle has one axis of symmetry , the lengths of two sides are 4 cm. and 8 cm.
 , then the length of the third side is cm.
(a) 3 (b) 6 (c) 4 (d) 8
- 5 The point of intersection of the medians of the triangle divides each of the medians in
 the ratio from the base.
(a) 2 : 1 (b) 3 : 2 (c) 2 : 4 (d) 3 : 4
- 6 If the length of any side of a triangle = $\frac{1}{3}$ the perimeter of the triangle , then the
 number of axes of symmetry of the triangle equals
(a) 3 (b) 1 (c) 2 (d) zero

2 Complete :

- 1 The bisector of the vertex angle of the isosceles triangle and

2 In the opposite figure :

The length of \overline{AC} =

- 3 In $\triangle ABC$, $m(\angle A) = m(\angle B) = m(\angle C)$, then the measure of the exterior angle
 equals
- 4 If the lengths of two sides of a triangle are 4 cm. , 7 cm. , then the length of the third
 side belongs to] , [
- 5 If $\angle X$ and $\angle Y$ are two supplementary angles , $\angle X \equiv \angle Y$, then $m(\angle X) = \dots\dots\dots^\circ$

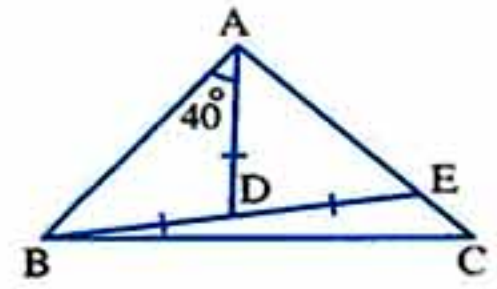
3 [a] In the opposite figure :

$$AD = BD = ED, m(\angle DAB) = 40^\circ$$

Prove that :

1 $AD < AB$

2 $BC > AC$

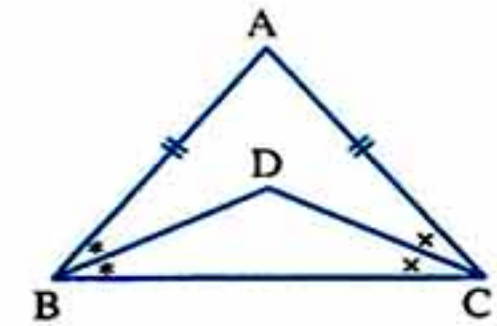


[b] In the opposite figure :

$$AB = AC, \overline{BD} \text{ bisects } \angle ABC$$

$$\text{and } \overline{CD} \text{ bisects } \angle ACB$$

Prove that : $\triangle DBC$ is an isosceles triangle.



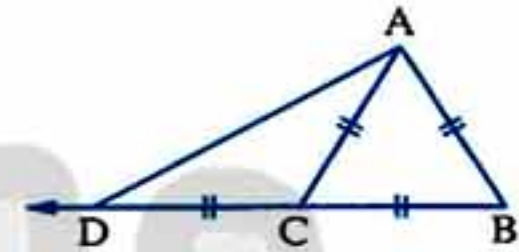
4 [a] ABC is a triangle in which $m(\angle A) = (6x)^\circ$, $m(\angle B) = (4x - 9)^\circ$

, $m(\angle C) = 3(x - 2)^\circ$ Arrange the lengths of the sides of the triangle ascendingly.

[b] In the opposite figure :

$$AB = AC = CB = CD$$

Prove that : $\overline{AB} \perp \overline{AD}$



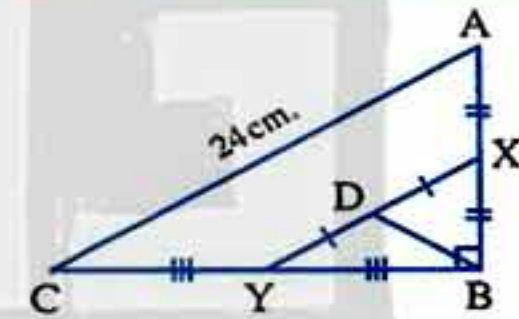
5 [a] In the opposite figure :

$$m(\angle ABC) = 90^\circ, X \text{ is the midpoint of } \overline{AB}$$

$$, Y \text{ is the midpoint of } \overline{BC}$$

$$, D \text{ is the midpoint of } \overline{XY}, AC = 24 \text{ cm.}$$

Find : The length of \overline{BD}



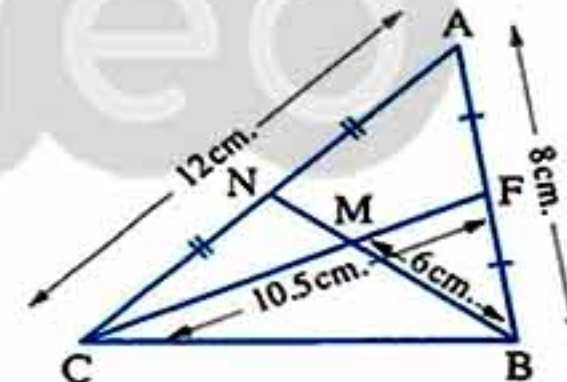
[b] In the opposite figure :

$$F \text{ and } N \text{ are the midpoints of } \overline{AB} \text{ and } \overline{AC} \text{ respectively}$$

$$, AB = 8 \text{ cm.}, AC = 12 \text{ cm.}, BM = 6 \text{ cm.}$$

$$, CF = 10.5 \text{ cm.}$$

Find : The perimeter of the figure AFMN



6

Alexandria Governorate

Middle Educational Zone
Math Supervision

Answer the following questions :

1 Complete each of the following :

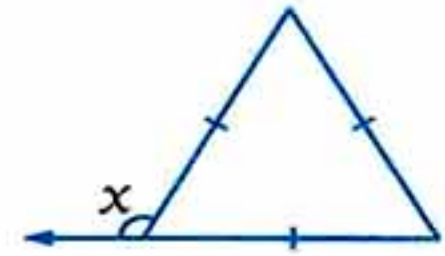
1 If $m(\angle A) = 65^\circ$, then $m(\text{complementary } \angle A) = \dots\dots\dots^\circ$

2 In $\triangle ABC$, $m(\angle A) = 50^\circ$, $m(\angle C) = 80^\circ$, then $CB = \dots\dots\dots$

Geometry

3 In the opposite figure :

$$x = \dots\dots\dots^\circ$$



4 The number of axes of symmetry for the rectangle equals

5 In $\triangle ABC$, $m(\angle B) = 70^\circ$, $m(\angle C) = 45^\circ$, then $BC \dots\dots\dots AC$

6 The medians of the triangle are

2 Choose the correct answer :

1 The sum of lengths of two sides in a triangle is the length of the third side.

- (a) $>$ (b) $<$ (c) $=$ (d) twice

2 The triangle which has no axis of symmetry is

- (a) scalene. (b) isosceles. (c) equilateral. (d) right-angled.

3 The numbers which can not be side lengths of a triangle are

- (a) 3 , 3 , 3 (b) 3 , 3 , 4 (c) 3 , 3 , 5 (d) 3 , 3 , 6

4 \overline{BE} is a median in $\triangle ABC$, M is the point of concurrence of the medians
If $BM = 6$ cm. , then $ME = \dots\dots\dots$ cm.

- (a) 2 (b) 3 (c) 4 (d) 9

5 The angle whose measure is 180° is called angle.

- (a) an acute (b) an obtuse (c) a straight (d) a reflex

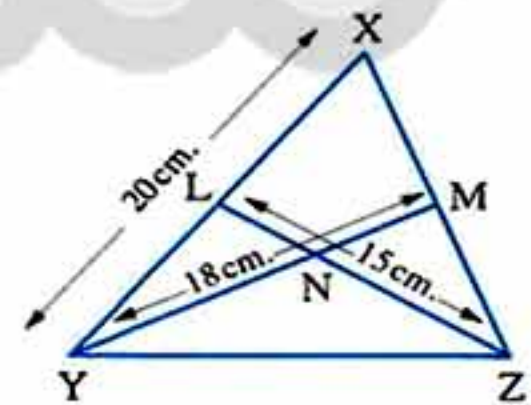
3 [a] $\triangle ABC$ is right-angled at B , if $m(\angle A) = 75^\circ$, arrange the lengths of its sides descendingly.

[b] In the opposite figure :

N is the point of concurrence of
the medians of $\triangle XYZ$

, $LZ = 15$ cm. , $YM = 18$ cm. , $XY = 20$ cm.

Find : The perimeter of $\triangle NLY$



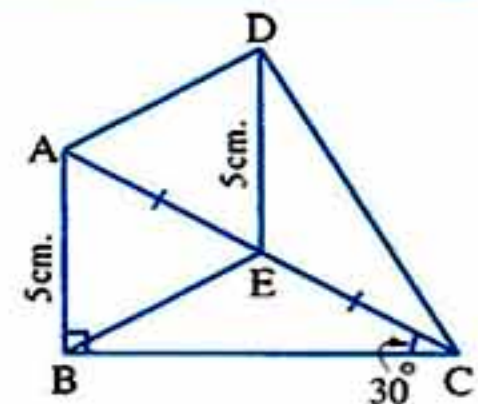
4 [a] In the opposite figure :

$m(\angle ABC) = 90^\circ$, E is the midpoint of \overline{AC}

, $m(\angle ACB) = 30^\circ$

, $AB = DE = 5$ cm.

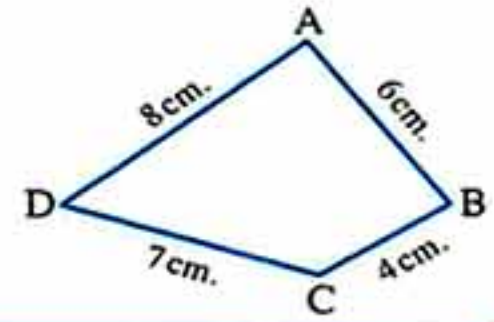
Prove that : $m(\angle ADC) = 90^\circ$



Final Examinations

[b] In the opposite figure :

Prove that : $m(\angle BCD) > m(\angle BAD)$



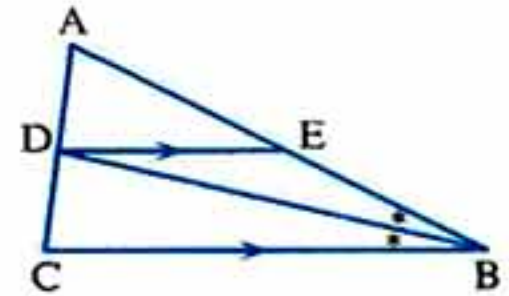
5 [a] In the opposite figure :

\overline{BD} bisects $\angle ABC$

, $\overline{DE} \parallel \overline{BC}$

Prove that :

$\triangle EBD$ is an isosceles triangle.

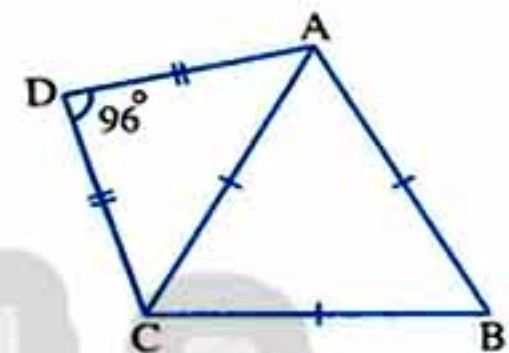


[b] In the opposite figure :

$\triangle ABC$ is equilateral , $DA = DC$

, $m(\angle ADC) = 96^\circ$

Find : $m(\angle DAB)$



7

Alexandria Governorate

Agamy Educational Zone
Inspector of Maths



Answer the following questions :

1 Choose the correct answer :

- 1 XYZ is a triangle in which $m(\angle Z) = 70^\circ$, $m(\angle Y) = 60^\circ$, then $YZ \dots\dots\dots XY$
 (a) $>$ (b) $<$ (c) $=$ (d) twice
- 2 The two diagonals are perpendicular in the
 (a) rectangle. (b) rhombus. (c) trapezium. (d) triangle.
- 3 The measure of the exterior angle of the equilateral triangle equals $^\circ$
 (a) 360 (b) 120 (c) 60 (d) 180
- 4 If the lengths of two sides in an isosceles triangle are 3 cm. , 7 cm. , then the length of the third side is cm.
 (a) 3 (b) 7 (c) 10 (d) 4
- 5 The point of concurrence of the medians of the triangle divides each median in the ratio from its base.
 (a) 2 : 1 (b) 1 : 3 (c) 1 : 4 (d) 1 : 2
- 6 If the side length of an equilateral triangle is 10 cm. , then its height equals cm.
 (a) 5 (b) 10 (c) $5\sqrt{3}$ (d) 30

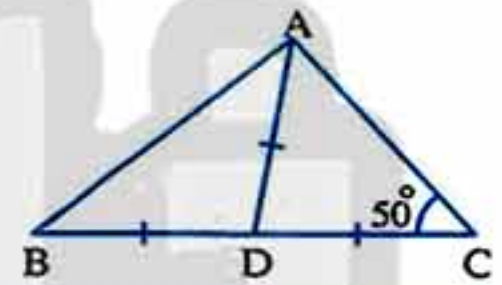
Geometry

2 Complete :

- 1 If the isosceles triangle has an angle of measure 45° , then the triangle is
- angled triangle.
- 2 The sum of lengths of any two sides of a triangle is the length of the third side.
- 3 In the opposite figure :
If $m(\angle C) = 2 m(\angle A)$
, $CB = 4 \text{ cm.}$
, then $AC = \dots\dots\dots \text{ cm.}$

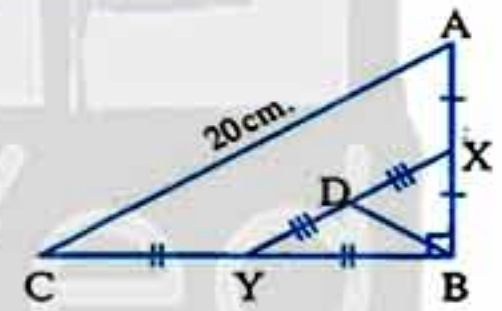


- 4 If the two side lengths in a triangle are 4 cm. , 7 cm. , then the length of the third side $\in]\dots\dots\dots , \dots\dots\dots[$
- 5 In the opposite figure :
 $AD = DC = BD$
, $m(\angle C) = 50^\circ$
, then $m(\angle B) = \dots\dots\dots^\circ$



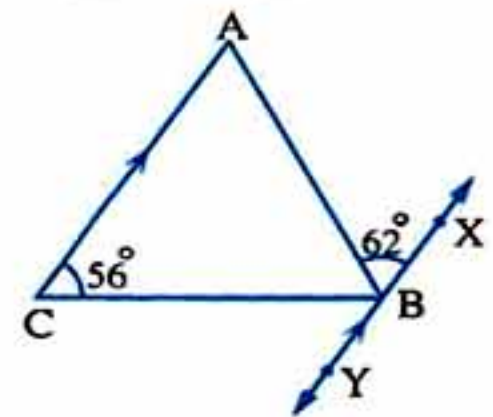
3 [a] In the opposite figure :

$m(\angle ABC) = 90^\circ$, D is the midpoint of \overline{XY}
, X , Y are the midpoints of \overline{AB} , \overline{BC} respectively , $AC = 20 \text{ cm.}$
Find : The length of \overline{BD}



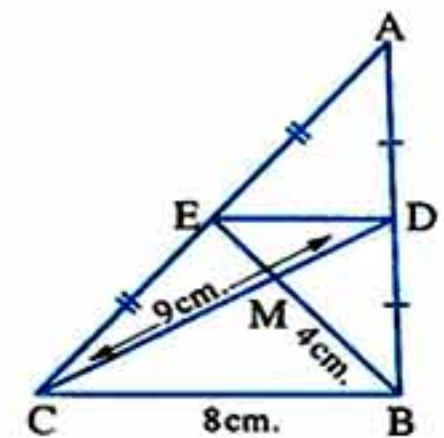
[b] In the opposite figure :

$B \in \overline{XY}$, $\overline{XY} \parallel \overline{AC}$
, $m(\angle ABX) = 62^\circ$
and $m(\angle C) = 56^\circ$
Prove that : $AC = BC$



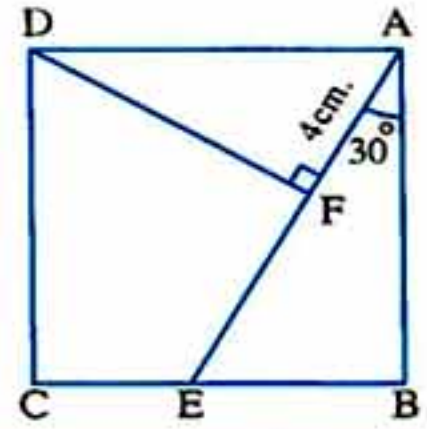
4 [a] In the opposite figure :

D , E are the midpoints of \overline{AB} and \overline{AC} respectively
, $DC = 9 \text{ cm.}$, $MB = 4 \text{ cm.}$ and $BC = 8 \text{ cm.}$
Find : The perimeter of $\triangle DME$



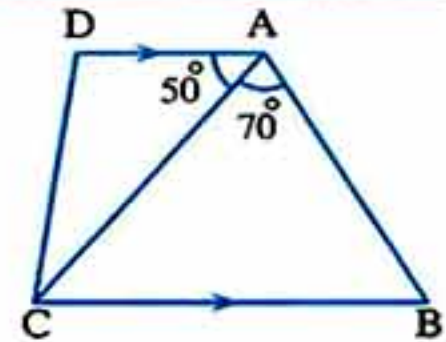
[b] In the opposite figure :

ABCD is a square , $E \in \overline{BC}$
 , where $m(\angle BAE) = 30^\circ$ and $\overline{DF} \perp \overline{AE}$
 , if $AF = 4$ cm.
 , calculate : The area of the square ABCD



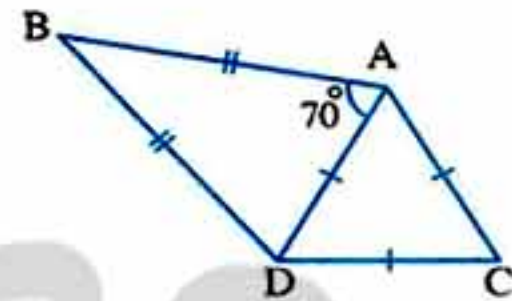
5 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $m(\angle CAB) = 70^\circ$
 , $m(\angle DAC) = 50^\circ$
 Prove that : $BC > AC$



[b] In the opposite figure :

$AB = BD$, $m(\angle BAD) = 70^\circ$
 , $\triangle ADC$ is equilateral
 Find : $m(\angle BDC)$



8

El-Kalyoubia Governorate

Directorate of Education
Inspection of Mathematics

Answer the following questions :

1 Choose the correct answer :

- 1 ABC is an equilateral triangle , then $m(\angle A) = \dots\dots\dots^\circ$
 (a) 45 (b) 60 (c) 120 (d) 35
- 2 $\triangle XYZ$ is an isosceles triangle , $m(\angle X) = 100^\circ$, then $m(\angle Y) = \dots\dots\dots^\circ$
 (a) 100 (b) 80 (c) 60 (d) 40
- 3 The length of the side opposite to the angle of measure 30° in the right-angled triangle equals $\dots\dots\dots$ the length of the hypotenuse.
 (a) $\frac{1}{2}$ (b) $\frac{2}{3}$ (c) $\frac{1}{4}$ (d) 2
- 4 The number of axes of symmetry of the isosceles triangle equals $\dots\dots\dots$
 (a) 0 (b) 1 (c) 2 (d) 3
- 5 If the lengths of two sides of an isosceles triangle are 2 cm. , 5 cm. , then the length of the third side equals $\dots\dots\dots$ cm.
 (a) 2 (b) 3 (c) 4 (d) 5
- 6 In the triangle ABC , if $m(\angle A) = 50^\circ$, $m(\angle B) = 60^\circ$, then the longest side is $\dots\dots\dots$
 (a) \overline{AB} (b) \overline{BC} (c) \overline{AC} (d) 110 cm.

Geometry

2 Complete :

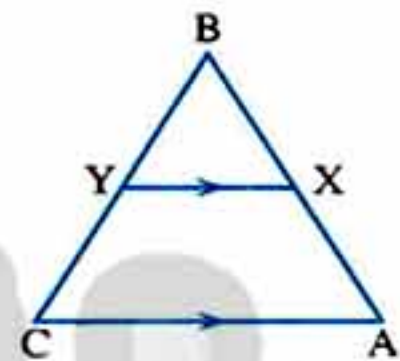
- 1 The medians of a triangle are
- 2 The longest side of the right-angled triangle is the
- 3 If $AB = AC$ in the triangle ABC , then ABC is triangle.
- 4 XYZ is a triangle , $m(\angle Z) = 40^\circ$, $m(\angle Y) = 30^\circ$, then XY XZ
- 5 If the lengths of two sides of a triangle are 6 cm. and 9 cm. , then the length of the third side \in , [

- 3 [a] In $\triangle ABC$, $m(\angle A) = 40^\circ$, $m(\angle B) = 75^\circ$, $m(\angle C) = 65^\circ$
Arrange the lengths of the sides of this triangle descendingly.

[b] In the opposite figure :

$$AB = BC , \overline{XY} \parallel \overline{AC}$$

Prove that : $BX = BY$

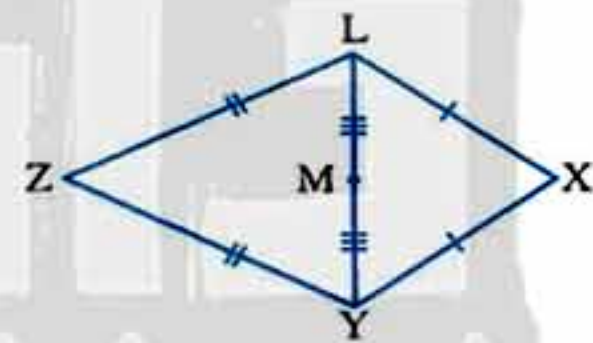


4 [a] In the opposite figure :

$$XY = XL , ZY = ZL$$

$$, LM = MY$$

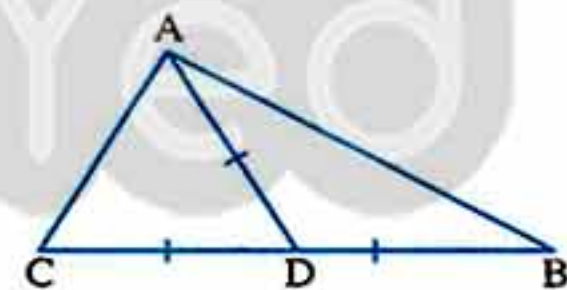
Prove that : X , M , Z are on the same straight line.



[b] In the opposite figure :

$$AB > AC , DB = DC = AD$$

Prove that : $m(\angle BAD) < m(\angle CAD)$



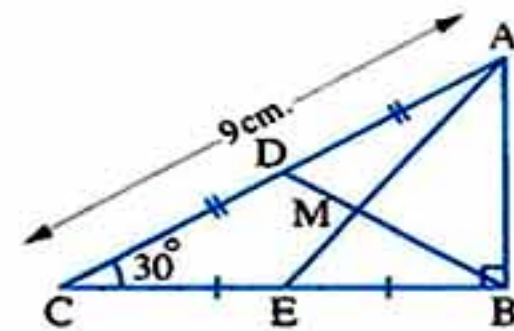
5 [a] In the opposite figure :

$\triangle ABC$ is a right-angled triangle at B

, $m(\angle C) = 30^\circ$, D is the midpoint of \overline{AC}

, E is the midpoint of \overline{BC} , $AC = 9$ cm.

Find the length of each of : \overline{BD} , \overline{BM} , \overline{AB} , \overline{MD}

[b] ABC is a triangle such that

$$m(\angle A) = (2x)^\circ , m(\angle C) = (x + 40)^\circ , m(\angle B) = (3x - 10)^\circ$$

Prove that : $AB = AC$

9

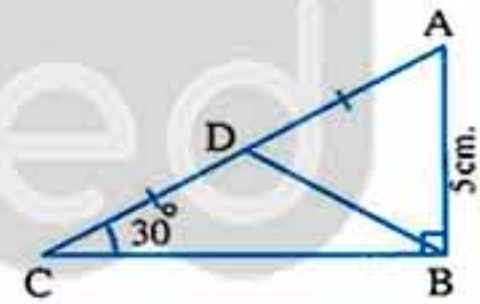
El-Sharkia Governorate

Zagazig English Language School
for Girls

Answer the following questions :

1 Choose the correct answer :

- 1 In $\triangle ABC$, $m(\angle A) = 60^\circ$, $m(\angle C) = 45^\circ$, then
 (a) $AB < AC$ (b) $AB = AC$ (c) $AB > AC$ (d) $AB = BC$
- 2 If M is the point of concurrence of the medians of $\triangle ABC$, \overline{AD} is a median , then $MA =$
 (a) $2 AD$ (b) $\frac{2}{3} AD$ (c) $\frac{3}{2} AD$ (d) $\frac{1}{2} MD$
- 3 In $\triangle ABC$, $AB = 4$ cm. , $BC = 6$ cm. , then $AC \in$
 (a) $]2, 4[$ (b) $[2, 10]$ (c) $]2, 10[$ (d) $[0, 10]$
- 4 The number of axes of symmetry of the equilateral triangle equals
 (a) zero (b) 1 (c) 2 (d) 3
- 5 In $\triangle ABC$, $AB = AC$, $m(\angle B) = x + 30^\circ$, $m(\angle C) = 2x + 5^\circ$, then $x =$
 (a) 25° (b) 20° (c) 35° (d) 3°
- 6 In the opposite figure :
 $AD = DC$, $m(\angle C) = 30^\circ$, $m(\angle ABC) = 90^\circ$, $AB = 5$ cm. , then the perimeter of $\triangle ABD =$ cm.
 (a) 5 (b) 15 (c) 20 (d) 25



2 Complete :

- 1 ABCD is a rectangle , $AB = 3$ cm. , $BC = 4$ cm. , then $BD =$ cm.
- 2 In $\triangle ABC$, if D is the midpoint of \overline{BC} and $AD = \frac{1}{2} BC$, then $m(\angle CAB) =$ °
- 3 The longest side in the right-angled triangle is
- 4 If $\triangle ABC \equiv \triangle XYZ$, then $AC - XZ =$
- 5 The median that is drawn from the vertex angle of an isosceles triangle and

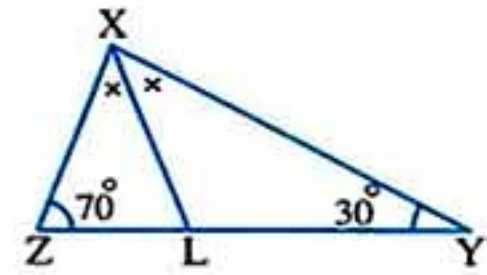
Geometry

3 [a] In the opposite figure :

\overline{XL} bisects $\angle YXZ$, $m(\angle Y) = 30^\circ$
 $m(\angle Z) = 70^\circ$

1 Find : $m(\angle LXZ)$ and $m(\angle XLZ)$

2 Prove that : $\triangle XLZ$ is an isosceles triangle.

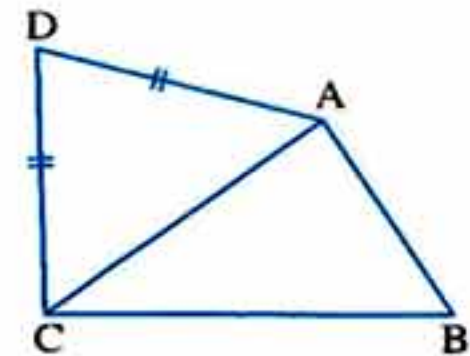


[b] In the opposite figure :

ABCD is a quadrilateral

, $AD = DC$, $BC > AB$

Prove that : $m(\angle BAD) > m(\angle BCD)$



4 [a] In the opposite figure :

X is the midpoint of \overline{AC} , $AB = 8$ cm.

, Y is the midpoint of \overline{BC} , $AM = 5$ cm. , $BX = 6$ cm.

Find : The perimeter of $\triangle XMY$

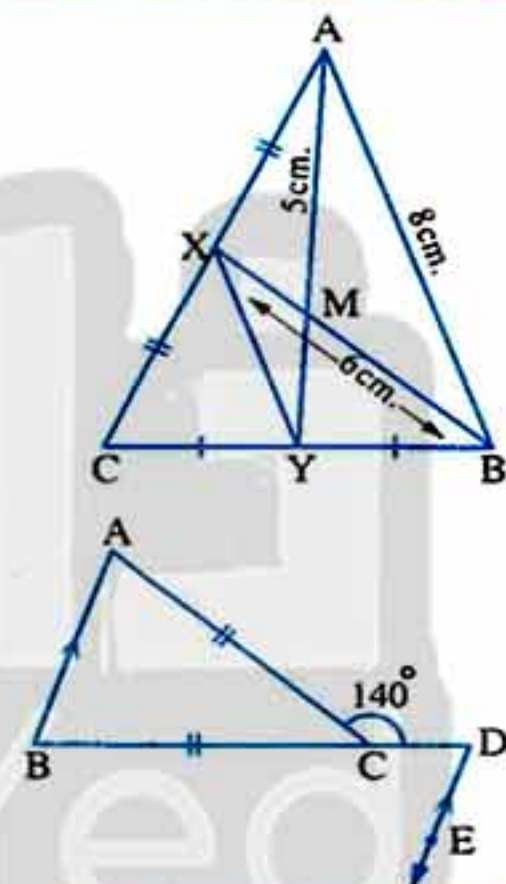
[b] In the opposite figure :

$C \in \overline{BD}$, $CA = CB$

, $\overline{AB} \parallel \overline{DE}$

, $m(\angle ACD) = 140^\circ$

Find : $m(\angle A)$ and $m(\angle BDE)$



5 [a] In the opposite figure :

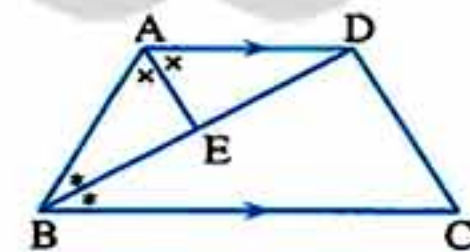
ABCD is a quadrilateral , $\overline{AD} \parallel \overline{BC}$

, \overline{BD} bisects $\angle ABC$

, \overline{AE} bisects $\angle BAD$

Prove that : 1 $AD = AB$

2 $\overline{AE} \perp \overline{BD}$



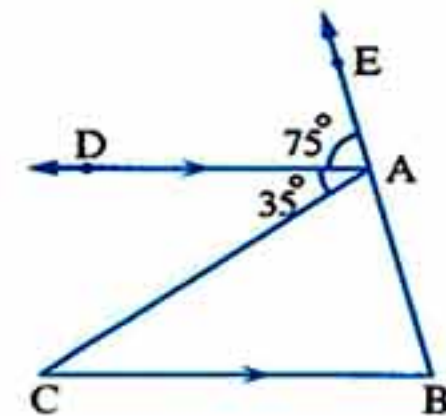
[b] In the opposite figure :

$E \in \overline{BA}$, $\overline{AD} \parallel \overline{BC}$

, $m(\angle DAE) = 75^\circ$

, $m(\angle DAC) = 35^\circ$

Prove that : $BC > AB$



10

El-Monofia Governorate

El-Shohadea Directorate
Maths Supervision

Answer the following questions :

1 Choose the correct answer :

- 1 The intersecting point of the medians of the triangle divides each median in the ratio of from its base.
(a) 1 : 2 (b) 2 : 1 (c) 3 : 1 (d) 1 : 3
- 2 The number of symmetry axes of the isosceles triangle is
(a) 1 (b) 2 (c) 3 (d) 4
- 3 The sum of lengths of any two sides of a triangle the length of the third side.
(a) < (b) > (c) = (d) =
- 4 The diagonals are perpendicular in the
(a) trapezium. (b) parallelogram. (c) square. (d) rectangle.
- 5 If ΔABC is right-angled at B , $AB = 6$ cm. , $BC = 8$ cm. , then the length of the median drawn from B equals cm.
(a) 3 (b) 4 (c) 5 (d) 6
- 6 If 4 cm. , $(X + 3)$ cm. and 8 cm. are side lengths of an isosceles triangle , then $X =$
(a) 3 (b) 4 (c) 5 (d) 6

2 Complete each of the following :

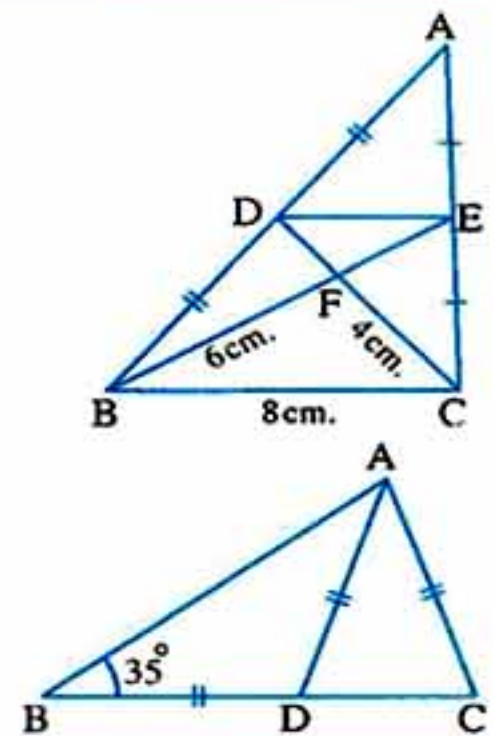
- 1 The base angles in an isosceles triangle are
- 2 If $m(\angle A) = 100^\circ$, then $m(\text{reflex } \angle A) =$ $^\circ$
- 3 The number of medians of the isosceles triangle is
- 4 In ΔABC , if $AB > BC$, then $m(\angle A)$ $m(\angle C)$
- 5 The bisector of the vertex angle of an isosceles triangle bisects the base and

3 [a] In the opposite figure :

ABC is a triangle in which D , E are the midpoints of \overline{AB} , \overline{AC}
 , $FC = 4$ cm. , $FB = 6$ cm. and $BC = 8$ cm.

Find : The perimeter of ΔDFE

[b] In the opposite figure :

 $AC = AD = BD$, $m(\angle B) = 35^\circ$ Find : $m(\angle BAC)$ 

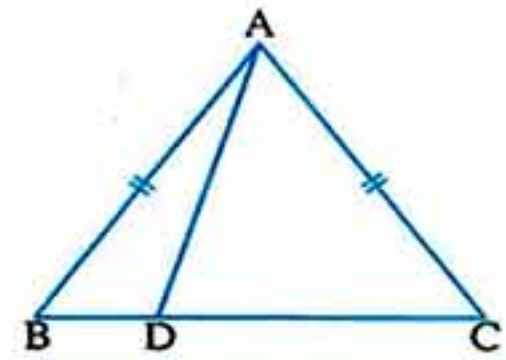
Geometry

4 [a] In the opposite figure :

$$AC = AB$$

Prove that :

$$AB > AD$$



[b] ABC is a triangle in which $m(\angle A) = 40^\circ$, $m(\angle B) = 80^\circ$ Arrange the lengths of the sides of the triangle descendingly.

5 In the opposite figure :

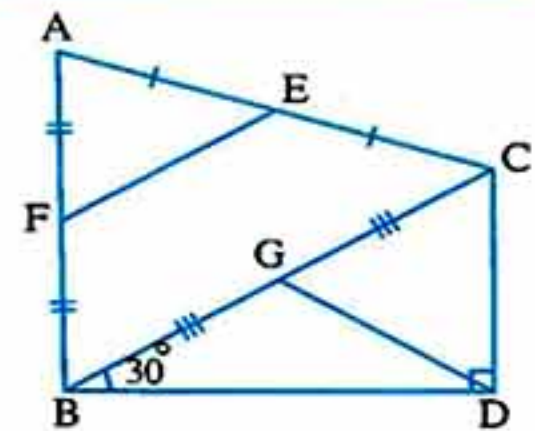
F , E , G are the midpoints of \overline{AB} , \overline{AC} , \overline{BC}

$$, m(\angle BDC) = 90^\circ , m(\angle CBD) = 30^\circ$$

$$, BC = 10 \text{ cm.}$$

1 Prove that : $FE = DC = GD$

2 Find : The perimeter of $\triangle GCD$



11

El-Dakahlia Governorate

Talkha Educational Directorate
A.M.D.L School



Answer the following questions :

1 Choose the correct answer from the given ones :

1 The numbers 4 , $x + 4$, 8 can be lengths of sides of an isosceles triangle if $x = \dots\dots\dots$

- (a) 4 (b) 0 (c) 3 (d) 8

2 In $\triangle LMN$, if $m(\angle M) = 55^\circ$, $m(\angle N) = 80^\circ$, then $LM \dots\dots\dots MN$

- (a) < (b) > (c) = (d) twice

3 The measure of the exterior angle of the equilateral triangle equals $\dots\dots\dots$

- (a) 30° (b) 60° (c) 90° (d) 120°

4 If \overline{AD} is a median of $\triangle ABC$, and M is the point of concurrence of the medians , then $AD = \dots\dots\dots AM$

- (a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{1}{2}$ (d) $\frac{3}{2}$

5 The base angles of the isosceles triangle are $\dots\dots\dots$

- (a) alternate (b) corresponding (c) congruent (d) supplementary

6 If $XA = XB$, $YA = YB$, then $\overline{XY} \dots\dots\dots \overline{AB}$

- (a) \perp (b) \equiv (c) \parallel (d) =

2 Complete the following :

- 1 The number of axes of symmetry of the isosceles triangle is
- 2 The bisector of the vertex angle of the isosceles triangle
- 3 The medians of the triangle intersect at
- 4 The longest side in the right-angled triangle is the
- 5 In $\triangle ABC$, if $AB = AC$, $m(\angle C) = 40^\circ$, then $m(\angle A) = \dots\dots\dots^\circ$

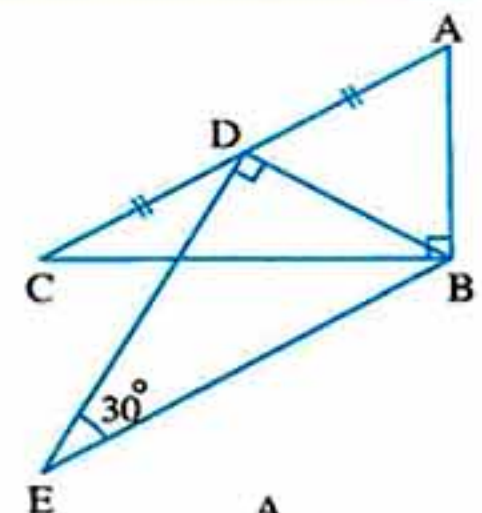
3 [a] In the opposite figure :

$$m(\angle ABC) = m(\angle BDE) = 90^\circ$$

$$, m(\angle E) = 30^\circ$$

, D is the midpoint of \overline{AC}

Prove that : $AC = BE$

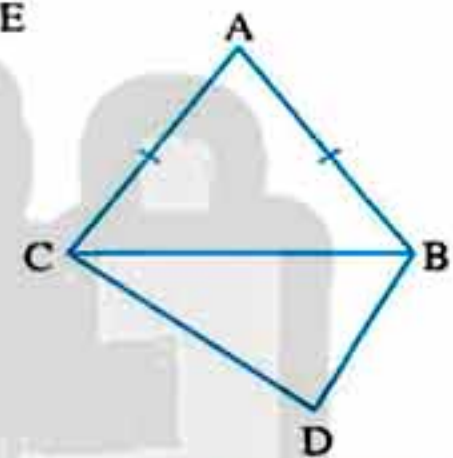


[b] In the opposite figure :

$$AB = AC , DC > DB$$

Prove that :

$$m(\angle ABD) > m(\angle ACD)$$

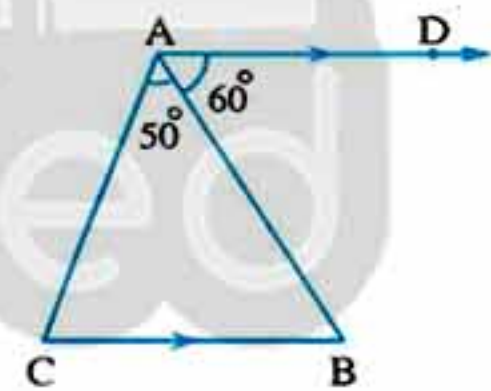


4 [a] In the opposite figure :

ABC is a triangle , $\overrightarrow{AD} \parallel \overrightarrow{CB}$

$$, m(\angle DAB) = 60^\circ , m(\angle BAC) = 50^\circ$$

Prove that : $AB > AC$



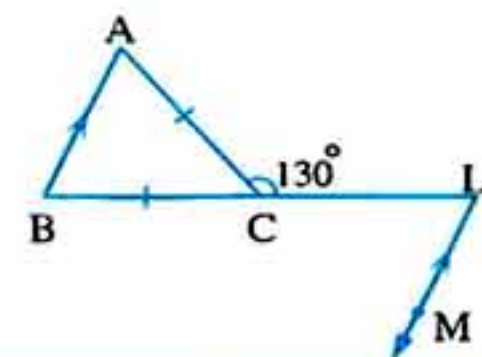
[b] In the opposite figure :

$$C \in \overline{LB} , AC = BC$$

$$, m(\angle LCA) = 130^\circ$$

$$, \overrightarrow{LM} \parallel \overrightarrow{AB}$$

Find : $m(\angle MLC)$



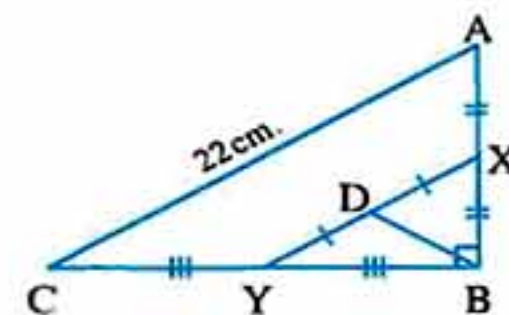
5 [a] In the opposite figure :

$$m(\angle ABC) = 90^\circ , X , Y , D$$

are the midpoints of $\overline{AB} , \overline{BC} , \overline{XY}$

respectively , if $AC = 22 \text{ cm}$.

, find : BD

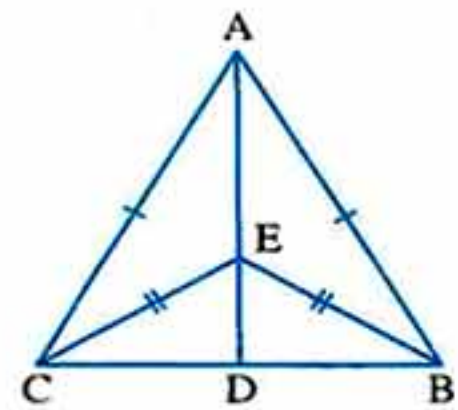


Geometry

[b] In the opposite figure :

$$AB = AC, EB = EC$$

Prove that : $BD = CD$



12

Suez Governorate

Directorate of Education
Inspection of Mathematics



Answer the following questions :

1 Complete :

- 1 The base angles in an isosceles triangle are
- 2 If the angles of a triangle are congruent , then the triangle is
- 3 In $\triangle ABC$, if $m(\angle A) = 70^\circ$, $m(\angle B) = 50^\circ$, then the longest side is
- 4 The point of concurrence of the medians of the triangle divides each median in the ratio of : from its vertex.
- 5 In $\triangle ABC$, if $m(\angle A) = 30^\circ$ and $m(\angle B) = 90^\circ$, then $AC = \dots\dots\dots BC$

2 Choose the correct answer :

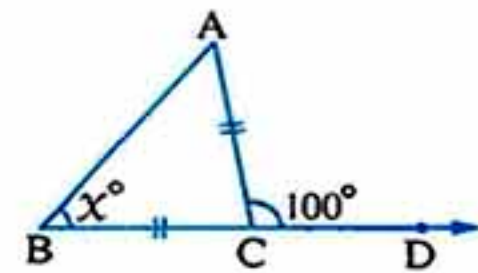
- 1 The triangle which has three axes of symmetry is
(a) scalene. (b) isosceles. (c) right-angled. (d) equilateral.
- 2 If the lengths of two sides in an isosceles triangle are 3 cm. and 7 cm. , then the length of the third side equals cm.
(a) 3 (b) 4 (c) 6 (d) 7
- 3 XYZ is a triangle in which $m(\angle Z) = 70^\circ$ and $m(\angle Y) = 60^\circ$, then $YZ \dots\dots\dots XY$
(a) $>$ (b) $<$ (c) $=$ (d) twice

4 In the opposite figure :

$$CA = CB, m(\angle B) = x^\circ$$

$$, m(\angle ACD) = 100^\circ \text{ where } C \in \overline{BD}$$

, then $x = \dots\dots\dots$



- (a) 50° (b) 100° (c) 150° (d) 200°
- 5 In $\triangle ABC$, if $AB = AC$ and \overline{AD} is a median , then $\overline{AD} \dots\dots\dots \overline{BC}$
(a) \equiv (b) \perp (c) \subset (d) $//$
- 6 In $\triangle ABC$, if $AB = 3 \text{ cm.}$, $BC = 5 \text{ cm.}$, then $AC \in \dots\dots\dots$
(a) $]2, 8[$ (b) $]2, 7[$ (c) $]2, 15[$ (d) $]8, 15[$

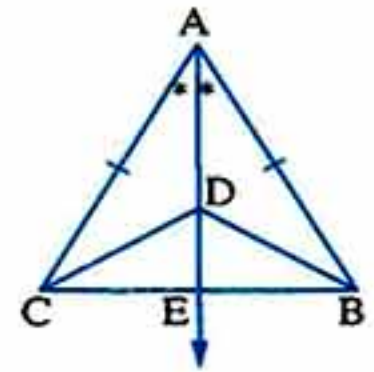
Final Examinations

- 3 [a] ABC is a triangle in which $m(\angle A) = 40^\circ$, $m(\angle B) = 75^\circ$ Arrange the lengths of sides of the triangle descendingly.

[b] In the opposite figure :

$AB = AC$, \overline{AE} bisects $\angle BAC$
 $\overline{AE} \cap \overline{BC} = \{E\}$, $D \in \overline{AE}$

Prove that : $BD = CD$



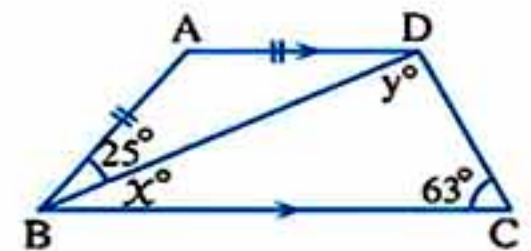
- 4 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $AD = AB$

$m(\angle ABD) = 25^\circ$, $m(\angle C) = 63^\circ$

$m(\angle DBC) = x^\circ$, $m(\angle CDB) = y^\circ$

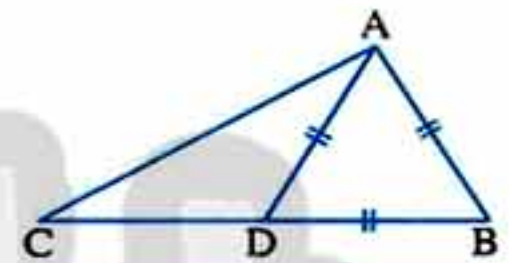
Find the value of each of : x and y



[b] In the opposite figure :

$AB = BD = DA$

Prove that : $BC > AC$



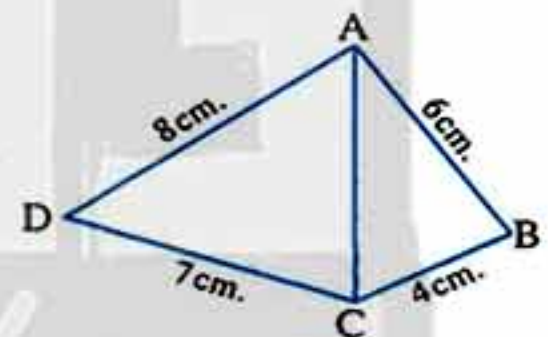
- 5 [a] In the opposite figure :

ABCD is a quadrilateral

$AB = 6$ cm., $BC = 4$ cm.

$CD = 7$ cm., $AD = 8$ cm.

Prove that : $m(\angle BCD) > m(\angle BAD)$



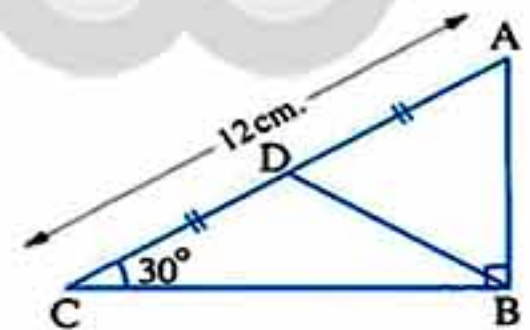
[b] In the opposite figure :

ABC is a triangle, $m(\angle ABC) = 90^\circ$

D is the midpoint of \overline{AC}

$AC = 12$ cm., $m(\angle C) = 30^\circ$

then find : The perimeter of $\triangle ABD$



13

El-Beheira Governorate

Damanhur Directorate
Al-Ferabi Language School

Answer the following questions :

- 1 Complete the following :

- 1 The length of the side opposite to the angle of measure 30° in the right-angled triangle equals the length of the hypotenuse.

Geometry

- 2 If \overline{AD} is a median in $\triangle ABC$, M is the point of intersection of its medians and $AM = 12$ cm., then $AD = \dots\dots\dots$
- 3 The number of axes of symmetry of the isosceles triangle equals $\dots\dots\dots$
- 4 In a triangle, if two angles are unequal in measure, then the greater angle in measure is opposite to $\dots\dots\dots$
- 5 If $\overline{AB} \equiv \overline{XY}$ and $AB = 5$ cm., then $2AB - XY = \dots\dots\dots$

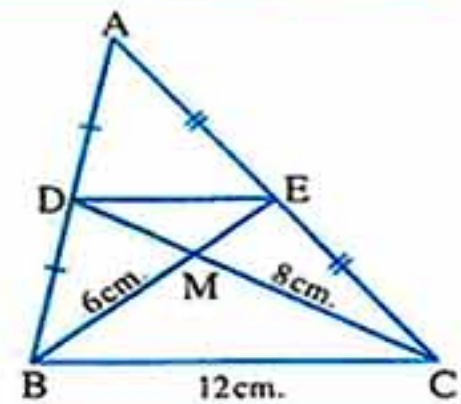
2 Choose the correct answer :

- 1 The measure of one of the base angles in the isosceles triangle is 65° , then the measure of its vertex angle equals $\dots\dots\dots^\circ$
 (a) 65 (b) 50 (c) 130 (d) 55
- 2 If 4 cm., $(X + 3)$ cm. and 8 cm. are side lengths of an isosceles triangle, then $X = \dots\dots\dots$
 (a) 4 (b) 3 (c) 5 (d) 8
- 3 If $\triangle ABC$ is right-angled at B , $AB = 6$ cm., $BC = 8$ cm., then the length of the median drawn from B equals $\dots\dots\dots$ cm.
 (a) 10 (b) 8 (c) 6 (d) 5
- 4 The diagonals are perpendicular in the $\dots\dots\dots$
 (a) trapezium. (b) parallelogram. (c) square. (d) triangle.
- 5 The point of concurrence of the medians of the triangle divides each median in the ratio of $\dots\dots\dots$ from the base.
 (a) 1 : 2 (b) 1 : 3 (c) 2 : 1 (d) 3 : 1
- 6 The acute angle supplements $\dots\dots\dots$ angle.
 (a) an acute (b) an obtuse (c) a right (d) a reflex

3 [a] In the opposite figure :

\overline{BE} , \overline{CD} are medians in $\triangle ABC$
 $MB = 6$ cm., $MC = 8$ cm.,
 $BC = 12$ cm.

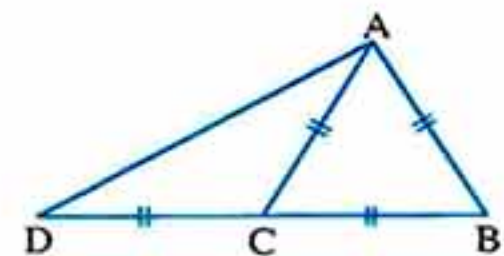
Find : The perimeter of $\triangle MDE$



[b] In the opposite figure :

$AB = BC = AC = DC$

Prove that : $m(\angle BAD) = 90^\circ$



Final Examinations

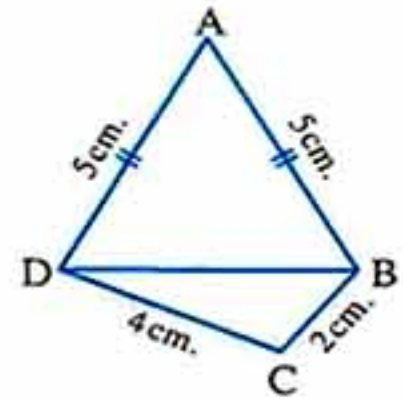
4 [a] In the opposite figure :

ABCD is a quadrilateral in which $AB = AD = 5$ cm.

, $BC = 2$ cm. , $DC = 4$ cm.

Prove that :

$m(\angle ABC) > m(\angle ADC)$

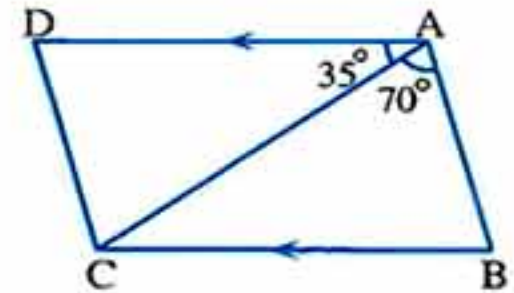


[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $m(\angle BAC) = 70^\circ$

and $m(\angle DAC) = 35^\circ$

Prove that : $AC > BC$

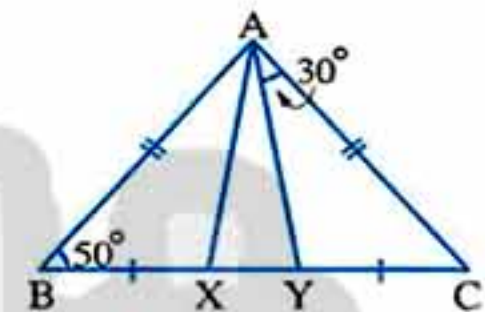


5 In the opposite figure :

ABC is a triangle in which

$AB = AC$, $BX = CY$

If $m(\angle B) = 50^\circ$, $m(\angle CAY) = 30^\circ$



1 Prove that : $\triangle AYX$ is an isosceles triangle.

2 Find : $m(\angle AXY)$

14

El-Menia Governorate

El-Menia Directorate of Education
Kafr El-Mansoura Formal Language School



Answer the following questions :

1 Choose the correct answer :

1 The triangle in which the measures of two angles of it are 42° and 69° is

(a) an isosceles triangle.

(b) an equilateral triangle.

(c) a scalene triangle.

(d) a right-angled triangle.

2 In $\triangle ABC$ which is right-angled at B , if $AC = 20$ cm. , then the length of the median drawn from B equals

(a) 10 cm.

(b) 8 cm.

(c) 6 cm.

(d) 5 cm.

3 In $\triangle ABC$, if $m(\angle B) = 130^\circ$, then the longest side of it is

(a) \overline{BC}

(b) \overline{AC}

(c) \overline{AB}

(d) its median.

4 The two angles are said to be supplementary if the sum of their measures is

(a) zero°

(b) 90°

(c) 180°

(d) 360°

Geometry

- 5 The lengths which can be lengths of sides of a triangle are
- (a) (0 , 3 , 5) (b) (3 , 3 , 5) (c) (3 , 3 , 6) (d) (3 , 3 , 7)
- 6 ΔXYZ is an isosceles triangle in which $m(\angle X) = 100^\circ$, then $m(\angle Y) = \dots\dots\dots$
- (a) 100° (b) 80° (c) 60° (d) 40°

2 Complete :

- 1 The sum of measures of the accumulative angles at a point is°
- 2 The ray drawn from the midpoint of a side of a triangle parallel to another side the third side.
- 3 If the measure of an angle in an isosceles triangle equals 60° , then the triangle is
- 4 The point of concurrence of the medians of the triangle divides each median in the ratio of from the base.
- 5 In ΔABC , $m(\angle B) = 70^\circ$, $m(\angle C) = 50^\circ$, then $AC \dots\dots\dots AB$

3 [a] In the opposite figure :

$$\overline{AB} \cap \overline{CD} = \{M\}, \overline{AC} \perp \overline{CD}, \overline{BD} \perp \overline{CD}$$

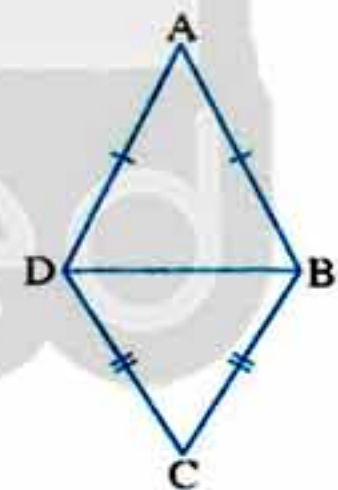
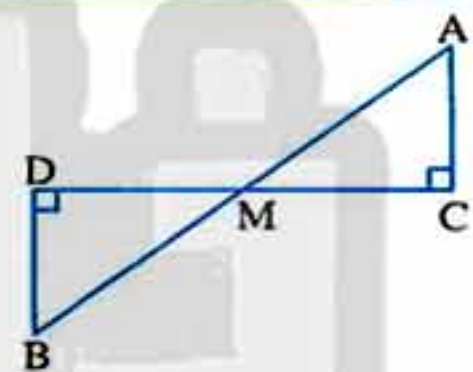
Prove that : $AB > CD$

[b] In the opposite figure :

$$AB = AD, BC = CD$$

Prove that :

$$m(\angle ABC) = m(\angle ADC)$$



4 [a] In the opposite figure :

$$AB > BC, \overline{XY} \parallel \overline{BC}$$

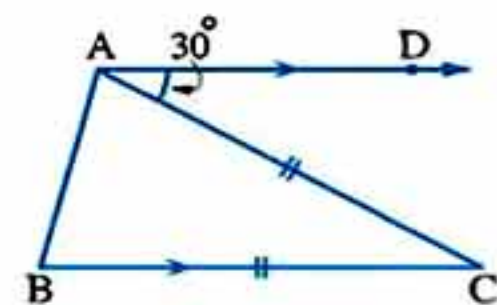
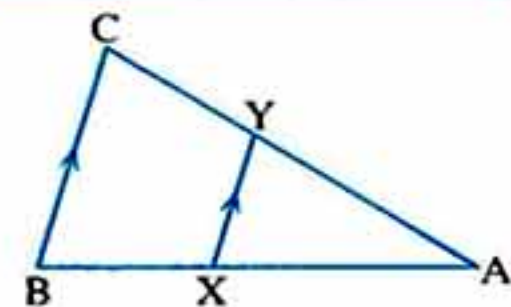
Prove that : $AX > XY$

[b] In the opposite figure :

ABC is a triangle in which $AC = BC$, $\overline{AD} \parallel \overline{BC}$, $m(\angle DAC) = 30^\circ$

Find with proof :

The measures of the angles of ΔABC



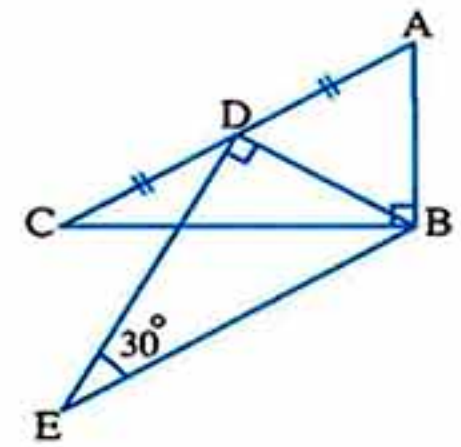
5 [a] In the opposite figure :

$$m(\angle ABC) = m(\angle BDE) = 90^\circ$$

$$, m(\angle E) = 30^\circ$$

, D is the midpoint of \overline{AC}

Prove that : $AC = BE$



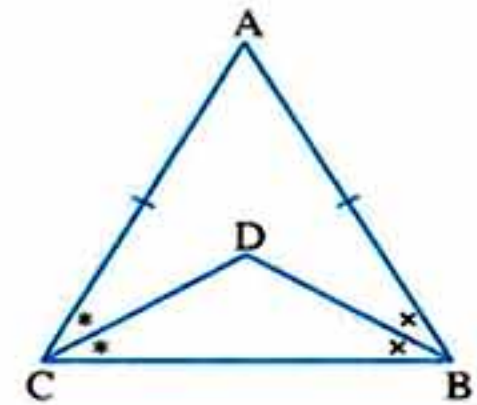
[b] In the opposite figure :

$AB = AC$, \overline{BD} bisects $\angle ABC$

and \overline{CD} bisects $\angle ACB$

Prove that :

$\triangle DBC$ is isosceles.



15

Qena Governorate

Qena Directorate of Education
Math's Supervision

Answer the following questions :

1 Complete each of the following :

- 1 The number of axes of symmetry of the equilateral triangle equals
- 2 In the triangle ABC , if $AC = BC$ and $m(\angle C) = 80^\circ$, then $m(\angle A) = \dots\dots\dots^\circ$
- 3 XYZ is a triangle , $m(\angle X) = 60^\circ$, $m(\angle Y) = 40^\circ$, then $XZ \dots\dots\dots ZY$
- 4 The point of intersection of the medians of the triangle divides each of them with the ratio of from the vertex.
- 5 The perpendicular bisector of a line segment is called

2 Choose the correct answer from those given :

- 1 The lengths 9 cm. , 4 cm. and may be the side lengths of an isosceles triangle.
(a) 9 cm. (b) 13 cm. (c) 5 cm. (d) 4 cm.
- 2 \overline{AD} is a median of $\triangle ABC$, and M is the point of concurrence of the medians , then $AM = \dots\dots\dots AD$
(a) $\frac{2}{3}$ (b) $\frac{1}{2}$ (c) $\frac{3}{2}$ (d) 2
- 3 The measure of the exterior angle of an equilateral triangle equals
(a) 30° (b) 60° (c) 120° (d) 90°

Geometry

4 In the triangle ABC , if $m(\angle B) = 90^\circ$, then the greatest side in length is

- (a) \overline{AB} (b) \overline{AC} (c) \overline{CB} (d) \overline{XY}

5 In $\triangle XYZ$, if $XY > ZX$, then $m(\angle Y)$ $m(\angle Z)$

- (a) $>$ (b) $<$ (c) $=$ (d) \equiv

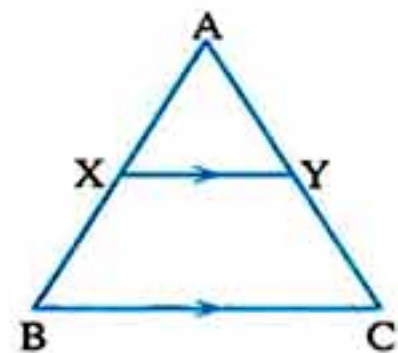
3 [a] In the opposite figure :

ABC is a triangle in which $AB = AC$

, $\overline{XY} \parallel \overline{BC}$

Prove that :

$\triangle AXY$ is an isosceles triangle.



[b] In $\triangle ABC$, $m(\angle A) = 40^\circ$, $m(\angle B) = 75^\circ$ Arrange the lengths of sides of $\triangle ABC$ in an ascending order.

4 [a] In the opposite figure :

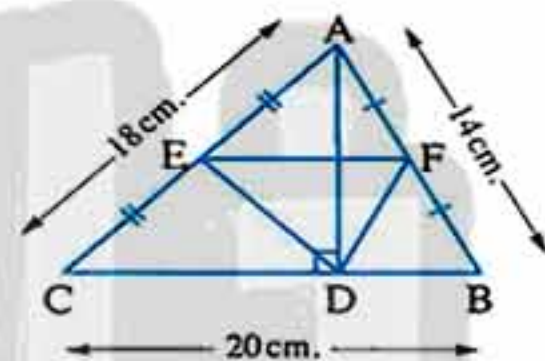
ABC is a triangle in which $AB = 14$ cm.

, $AC = 18$ cm. , $BC = 20$ cm.

, E is the midpoint of \overline{AC}

, F is the midpoint of \overline{AB} , and $\overline{AD} \perp \overline{BC}$

Find : The perimeter of $\triangle DEF$



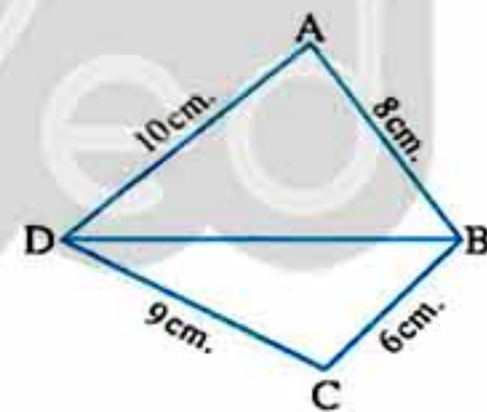
[b] In the opposite figure :

ABCD is a quadrilateral in which $AB = 8$ cm.

, $BC = 6$ cm. , $CD = 9$ cm.

and $DA = 10$ cm.

Prove that : $m(\angle ABC) > m(\angle ADC)$

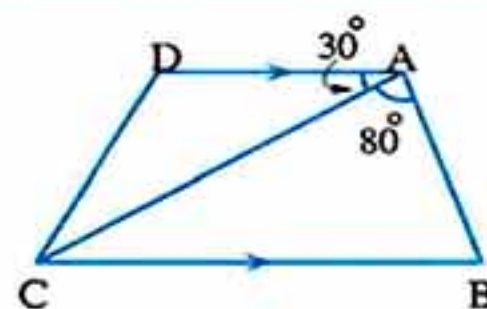


5 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $m(\angle BAC) = 80^\circ$

, $m(\angle DAC) = 30^\circ$

Prove that : $BC > AB$



[b] Complete : In $\triangle ABC$, if $AB = 7$ cm. , $AC = 5$ cm. , then $< BC <$

Final
Examinations of

Geometry
2019



Some Schools Examinations on Geometry

1

Cairo Governorate

East Nasr city administration
Heliopolis Language School
Mathematics Department

Answer the following questions :

1 Complete :

- (1) The intersection point of the three medians of the triangle divide the median in the ratio from the vertex.
- (2) In $\triangle ABC$: If $CA = CB$ and $m(\angle C) = m(\angle A)$, then $m(\angle B) = \dots\dots\dots^\circ$
- (3) The bisector of the vertex angle of the isosceles triangle is and
- (4) If the measure of an angle in the isosceles triangle is 100° , then the number of axes of symmetry of $\triangle ABC$ is
- (5) The longest side in the right-angled triangle is

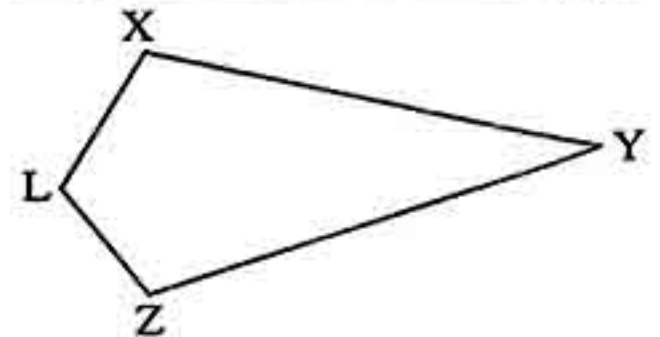
2 Choose the correct answer :

- (1) In $\triangle ABC$: If $m(\angle B) = 90^\circ$, then
 (a) $AC > CB$ (b) $AB > AC$ (c) $BC > AC$ (d) $AB = AC$
- (2) If the lengths of two sides of an isosceles triangle are 3 cm. and 7 cm. , then the length of the third side is
 (a) 3 (b) 4 (c) 7 (d) 10
- (3) In $\triangle ABC$: If $AB = AC$ and $m(\angle A) = 60^\circ$, then the number of axes of symmetry of the triangle ABC is
 (a) 0 (b) 1 (c) 2 (d) 3
- (4) Any triangle has medians.
 (a) 0 (b) 1 (c) 2 (d) 3
- (5) If ABCD is a square , then the axes of symmetry of \overline{AC} is
 (a) \overrightarrow{AD} (b) \overrightarrow{BC} (c) \overrightarrow{BD} (d) \overrightarrow{AB}

3 [a] In the opposite figure :

$XY > XL$

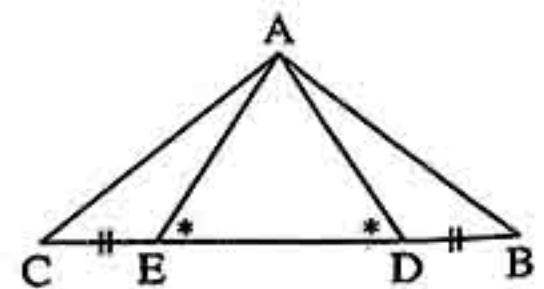
and $YZ > ZL$

Prove that : $m(\angle XLZ) > m(\angle XYZ)$ 

[b] In the opposite figure :t

$\angle ADC \equiv \angle AED$ and $BD = CE$

, B , D , E and C are collinear.

Prove that : $\triangle ABC$ is an isosceles triangle.

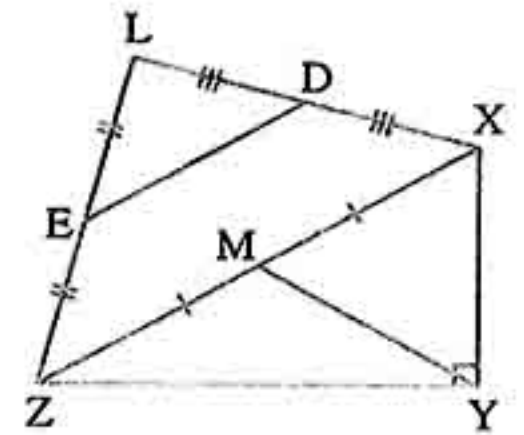
4 [a] In the opposite figure :

$$m(\angle XYZ) = 90^\circ$$

, D is midpoint of \overline{XL}

, E is midpoint of \overline{ZL} and M is the midpoint of \overline{XZ}

Prove that : $DE = YM$



[b] In the opposite figure :

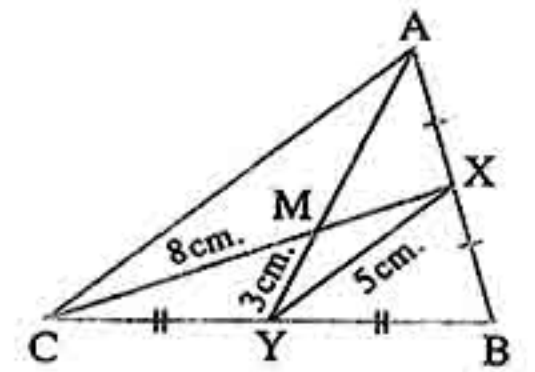
ABC is a triangle , X is the midpoint of \overline{AB}

, Y is midpoint of \overline{BC} , $XY = 5$ cm. and $\overline{XC} \cap \overline{AY} = \{M\}$

where $CM = 8$ cm. , $YM = 3$ cm.

Find : (1) The perimeter of $\triangle MXY$

(2) The perimeter of $\triangle MAC$



5 [a] In the opposite figure :

$AC > AB$ and $DB = DC$

Prove that : $m(\angle ABD) > m(\angle ACD)$

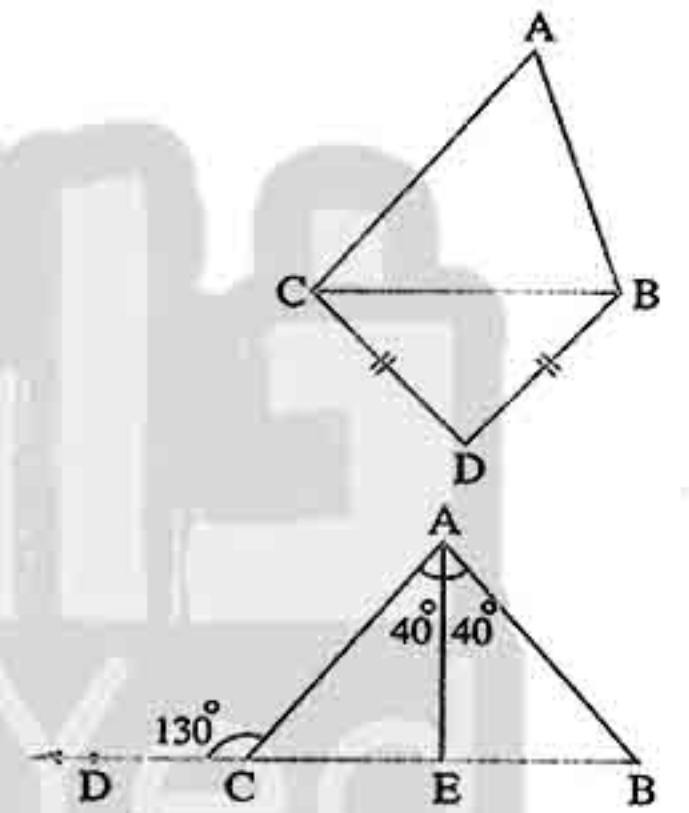
[b] In the opposite figure :

$C \in \overline{BD}$, $m(\angle ACD) = 130^\circ$

and $m(\angle BAE) = m(\angle CAE) = 40^\circ$

Prove that : (1) $\overline{AE} \perp \overline{BC}$

(2) E bisects \overline{BC}



2

Cairo Governorate

Maadi Educational Zone
Sakkara Language School



Answer the following questions :

1 Complete :

(1) In $\triangle XYZ$, $m(\angle X) = 90^\circ$, then the longest side is

(2) The base angles of the isosceles triangle are

(3) ABC is a triangle in which $AB = 4$ cm. , $CB = 7$ cm. , then $AC \in].....,[$

(4) If A \in the axis of symmetry of \overline{XY} , then =

(5) If the measure of an angle in the isosceles triangle equals 60° , then the triangle has axes of symmetry.

Geometry

2 Choose the correct answer :

- (1) The measure of the exterior angle of equilateral triangle =
 (a) 90° (b) 120° (c) 45° (d) 60°
- (2) If \overline{AD} is a median in $\triangle ABC$ and M is the point of intersection of the medians , then $AM = \dots\dots\dots AD$
 (a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{3}{2}$ (d) $\frac{1}{2}$
- (3) In $\triangle XYZ$, if $m(\angle Z) = 70^\circ$ and $m(\angle Y) = 60^\circ$, then $YZ \dots\dots\dots XY$
 (a) $<$ (b) $=$ (c) $>$ (d) is twice
- (4) The numbers 4 , 8 , can be lengths of sides of an isosceles triangle.
 (a) 4 (b) 8 (c) 12 (d) 3
- (5) In $\triangle ABC$, if $m(\angle B) = 90^\circ$ and $m(\angle C) = 30^\circ$, then $AB \dots\dots\dots AC$
 (a) $\frac{1}{3}$ (b) 2 (c) equals (d) $\frac{1}{2}$

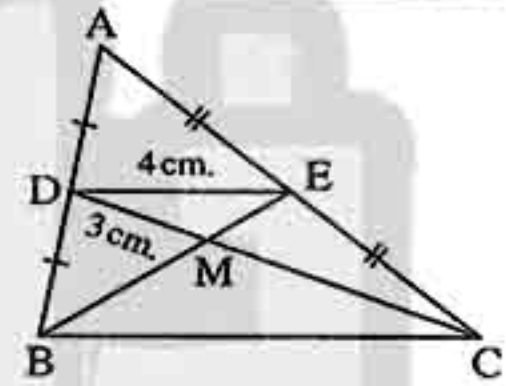
3 [a] In the opposite figure :

D is the midpoint of \overline{AB} , E is the midpoint of \overline{AC}

$\overline{CD} \cap \overline{BE} = \{M\}$

If $DE = 4 \text{ cm.}$, $DM = 3 \text{ cm.}$, $BE = 6 \text{ cm.}$

Find : The perimeter of $\triangle BMC$



- [b] In $\triangle ABC$, if $AB = 5 \text{ cm.}$, $BC = 7 \text{ cm.}$ and $AC = 9 \text{ cm.}$
 Arrange the measures of its angles in a descending order.

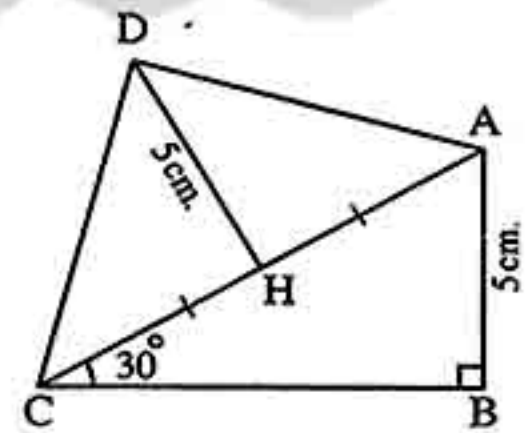
4 [a] In the opposite figure :

ABC is a right angled triangle at B

$m(\angle ACB) = 30^\circ$, $AB = 5 \text{ cm.}$

$DH = 5 \text{ cm.}$ and H is the midpoint of \overline{AC}

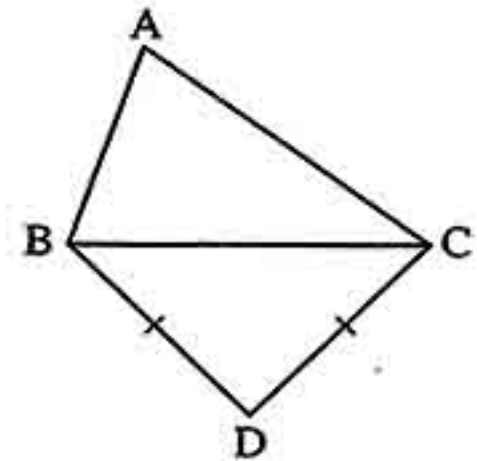
Prove that : $m(\angle ADC) = 90^\circ$



[b] In the opposite figure :

If $AC > AB$ and $DC = DB$

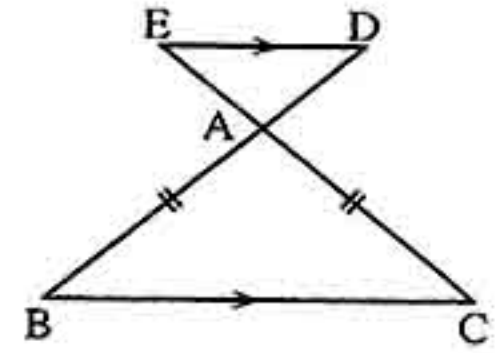
Prove that : $m(\angle ABD) > m(\angle ACD)$



5 [a] In the opposite figure :

If $AB = AC$

Prove that : $AD = AE$



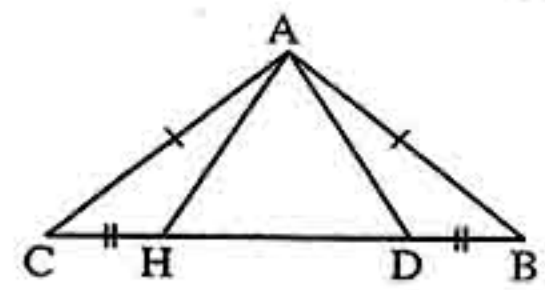
[b] In the opposite figure :

ABC is a triangle in which :

$AB = AC$, $BD = CH$

Prove that : ① $\triangle ADH$ is an isosceles triangle.

② $\angle AHD \equiv \angle ADH$



3 Cairo Governorate

El-Sayda Zinab Educational Zone



Answer the following questions :

1 Choose the suitable answer :

- ① The number of axes of symmetry of an equilateral triangle is
 (a) 0 (b) 1 (c) 2 (d) 3
- ② An isosceles triangle , one of its base angles has measure 50° , then the measure of the vertex angle =
 (a) 50° (b) 60° (c) 70° (d) 80°
- ③ \overline{AD} is a median of triangle ABC , and M is the point of intersection of the medians , then $AM = \dots\dots\dots AD$
 (a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{1}{2}$ (d) $\frac{1}{4}$
- ④ If the lengths of two sides of a triangle are 4 cm. and 8 cm. , then the length of the third side = cm.
 (a) 3 (b) 4 (c) 8 (d) 12
- ⑤ In a triangle ABC , if $m(\angle A) = 80^\circ$ and $m(\angle C) = 60^\circ$, then $AB \dots\dots\dots BC$
 (a) $<$ (b) $>$ (c) $=$ (d) \geq

2 Complete :

- ① If XYZ is a right-angled triangle at Y , then the longest side is
- ② The sum of measures of any two consecutive angles in the parallelogram = $^\circ$
- ③ The straight line perpendicular to the midpoint of a line segment is called
- ④ The bisectors of the vertex angle of an isosceles triangle and
- ⑤ The measure of the exterior angle of the equilateral triangle = $^\circ$

Geometry

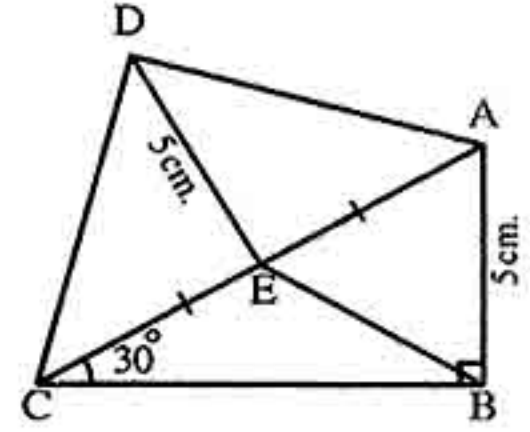
3 [a] In the opposite figure :

ABC is a right-angled triangle at B

, $m(\angle ACB) = 30^\circ$, $AB = 5$ cm.

, E is midpoint of \overline{AC}

If $DE = 5$ cm. then prove that : $m(\angle ADC) = 90^\circ$



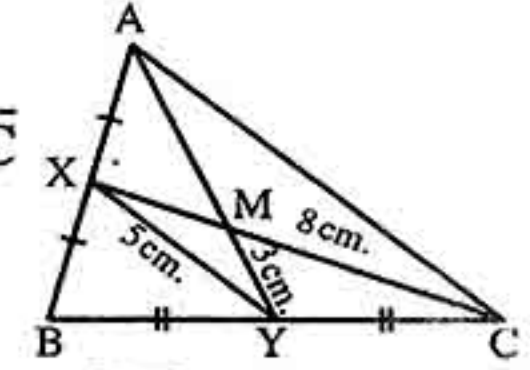
[b] In the opposite figure :

ABC is a triangle , X is the midpoint of \overline{AB} , Y is the midpoint of \overline{BC}

, $XY = 5$ cm. , $\overline{XC} \cap \overline{AY} = \{M\}$

where : $CM = 8$ cm. , $YM = 3$ cm.

Find with proof : The length of each of : ① \overline{AM} ② \overline{MX} ③ \overline{AC}

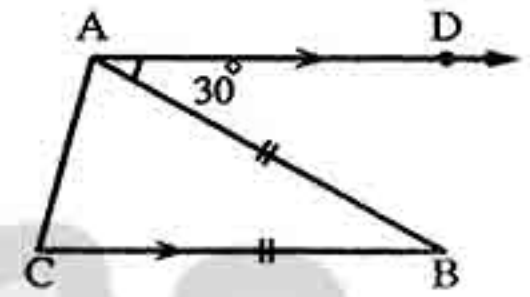


4 [a] In the opposite figure :

ABC is a triangle in which : $AB = BC$, $\overline{AD} \parallel \overline{BC}$

, $m(\angle DAB) = 30^\circ$

Find : The measures of the angles of $\triangle ABC$

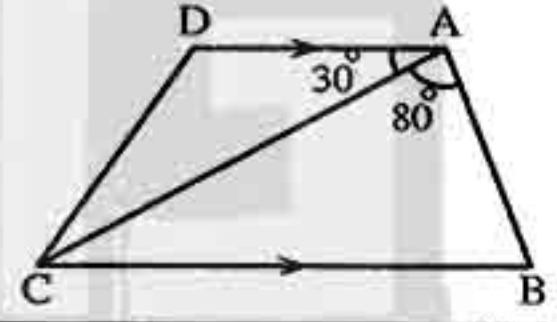


[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $m(\angle BAC) = 80^\circ$

, $m(\angle DAC) = 30^\circ$

Prove that : $BC > AB$

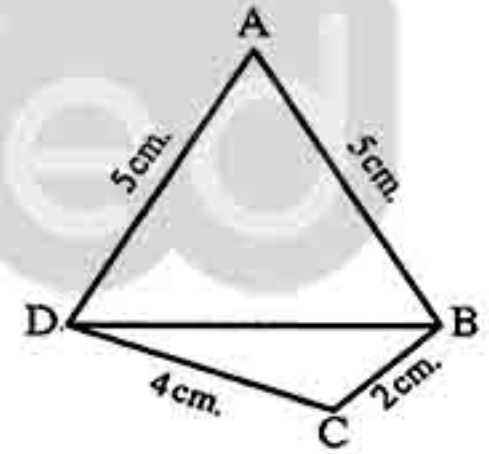


5 In the opposite figure :

ABCD is a quadrilateral in which : $AB = AD = 5$ cm.

, $BC = 2$ cm. , $DC = 4$ cm.

Prove that : $m(\angle ABC) > m(\angle ADC)$



Giza Governorate

Dokki District
Modern Narmar Language School



Answer the following questions :

1 Choose the correct answer from those given :

① In the opposite figure :

$\triangle ADB$, $m(\angle ADB) = 90^\circ$, $BD = 5$ cm.

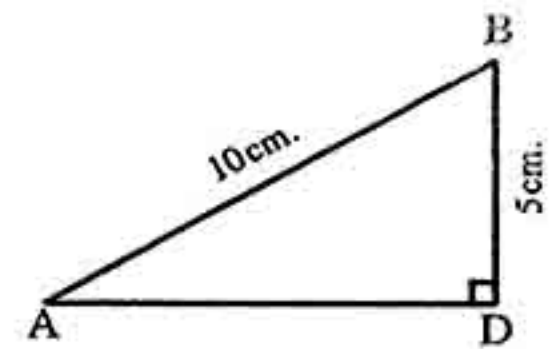
and $AB = 10$ cm. , then $m(\angle A) = \dots\dots\dots^\circ$

(a) 30

(b) 50

(c) 70

(d) 90



(2) In the opposite figure :

If $AB = AC$ and $BE = BC$

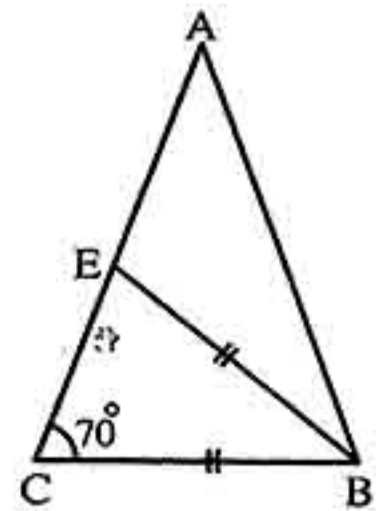
, then : $m(\angle ABE) = \dots\dots\dots$

(a) 30°

(b) 40°

(c) 70°

(d) 110°



(3) In the opposite figure :

$\triangle ABC$, $AB = BC$

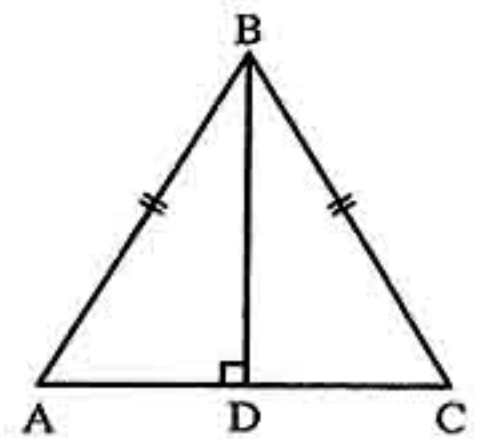
, an altitude is drawn from B to \overline{AC} and intersects \overline{AC} at D
which conclusion is not always true ?

(a) $m(\angle ABD) = m(\angle CBD)$

(b) $m(\angle BDA) = m(\angle BDC)$

(c) $AD = BD$

(d) $AD = DC$



(4) Which set of numbers represents the lengths of the sides of a triangle ?

(a) $\{5, 18, 13\}$

(b) $\{6, 17, 22\}$

(c) $\{16, 24, 7\}$

(d) $\{26, 8, 15\}$

(5) The point of concurrency of medians divides each median in the ratio from the base.

(a) $1 : 2$

(b) $2 : 1$

(c) $3 : 1$

(d) $2 : 3$

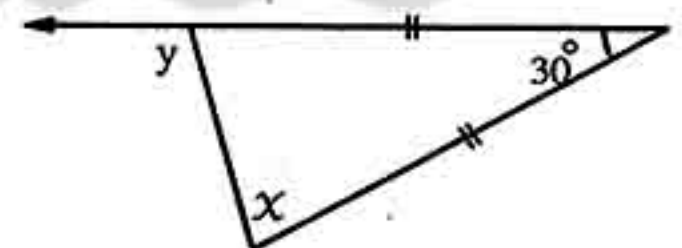
2 Complete :

(1) The longest side in the right-angled triangle is

(2) If the measure of an angle in the isosceles triangle equals 60° , then the triangle is

(3) In the opposite figure :

$x = \dots\dots\dots^\circ$ and $y = \dots\dots\dots^\circ$



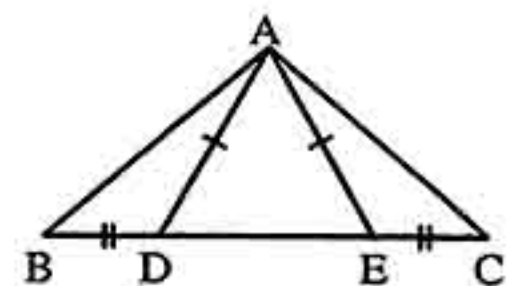
(4) If the length of the median drawn from the right vertex of a triangle is 6 cm. , then the length of the hypotenuse is cm.

(5) In $\triangle ABC$, $m(\angle A) = 60^\circ$, $m(\angle B) = 50^\circ$, then the longest side is

3 [a] In the opposite figure :

$AD = AE$ and $BD = CE$

Prove that : $\triangle ABC$ is an isosceles triangle.



Geometry

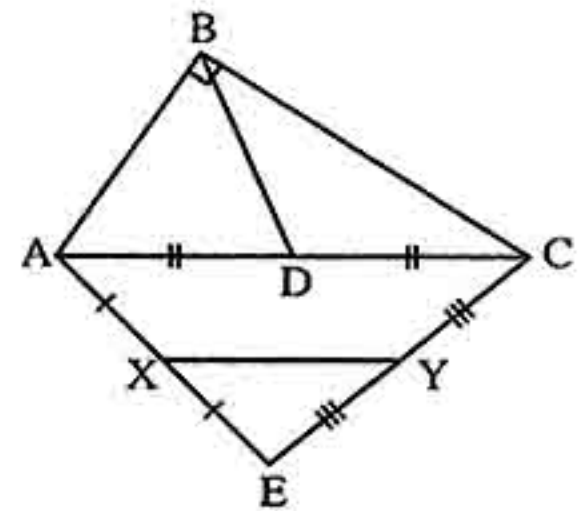
[b] In the opposite figure :

$\triangle ABC$ is right-angled at B

, D is the midpoint of \overline{AC}

, X and Y are the midpoints of \overline{AE} and \overline{CE} respectively.

Prove that : $BD = XY$



[4] [a] In the opposite figure :

$\triangle ABC$, F and E are the midpoints of \overline{AB} and \overline{AC} respectively.

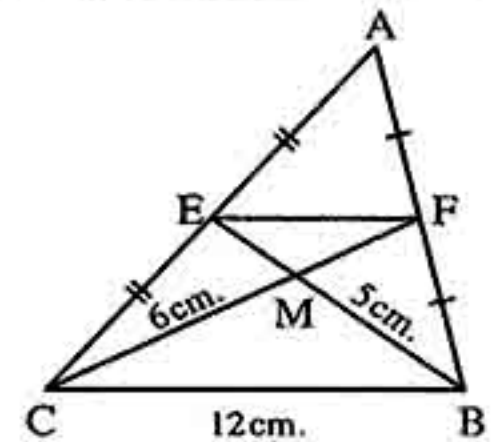
If $BM = 5$ cm. , $CM = 6$ cm. , $BC = 12$ cm. ,

then find : The perimeter of $\triangle MEF$

[b] In $\triangle ABC$, $m(\angle A) = 3x^\circ$, $m(\angle B) = (4x - 9)^\circ$

and $m(\angle C) = (2x + 9)^\circ$

Find the measure of each angle and arrange the sides in a descending order according to their lengths.

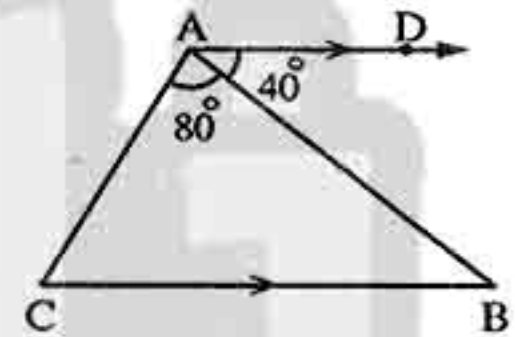


[5] [a] In the opposite figure :

$\triangle ABC$, in which : $\overline{AD} \parallel \overline{BC}$

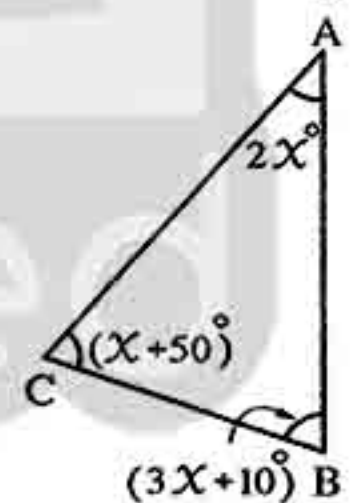
$m(\angle DAB) = 40^\circ$ and $m(\angle BAC) = 80^\circ$

Prove that : $AB > AC$



[b] In the opposite figure :

Show with proof, which sides are equal in length.



5

Giza Governorate

Omrania Directorate

El sadat Governmental Language School



Answer the following questions :

[1] Complete each of the following :

- ① The point of concurrence of medians of a triangle divides each median in ratio : from the vertex.
- ② The longest side in the right-angled triangle is
- ③ The straight line perpendicular to the midpoint of a line segment is called
- ④ The base angles of the isosceles triangle are
- ⑤ In $\triangle ABC$, if $AB < BC < AC$, then the greatest angle in measure is

2 Choose the correct answer from given ones :

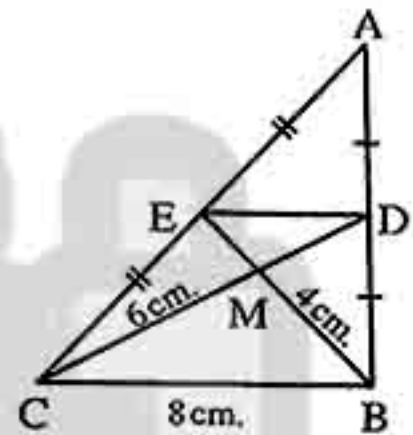
- ① The number of axes of symmetry in the scalene triangle is
 (a) 1 (b) 2 (c) 3 (d) zero
- ② The measure of the exterior angle of an equilateral triangle is
 (a) 90° (b) 120° (c) 60° (d) 30°
- ③ The numbers 5 , 4 , can be lengths of sides of a triangle.
 (a) 8 (b) 9 (c) 10 (d) 12
- ④ In $\triangle ABC$, $AB = AC$ and $m(\angle B) = 70^\circ$, then $m(\angle A) =$
 (a) 140° (b) 70° (c) 40° (d) 110°
- ⑤ $\triangle ABC$ in which : $m(\angle B) > m(\angle C)$, then AC AB
 (a) $>$ (b) $<$ (c) $=$ (d) \leq

3 [a] In the opposite figure :

ABC is a triangle in which D , E are midpoints of \overline{AB} and \overline{AC} respectively ,

$MC = 6$ cm. , $MB = 4$ cm. and $BC = 8$ cm.

Find : The perimeter of $\triangle DME$



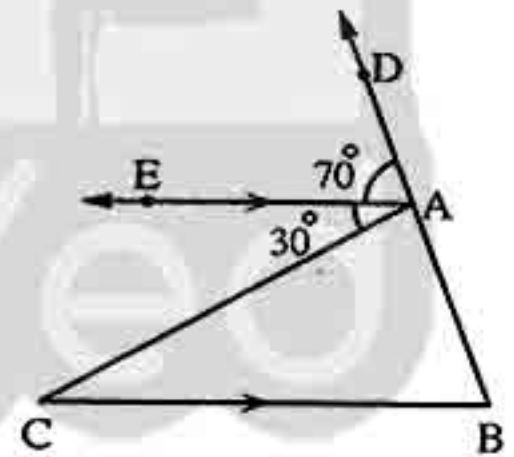
[b] In the opposite figure :

$\overline{AE} \parallel \overline{BC}$

$m(\angle DAE) = 70^\circ$

$m(\angle EAC) = 30^\circ$

Prove that : $AC > AB$

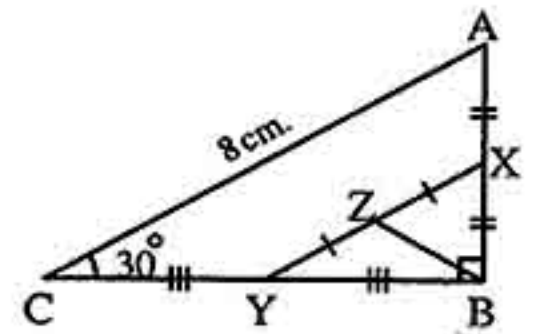


4 [a] In the opposite figure :

ABC is a triangle in which : $m(\angle ABC) = 90^\circ$

$m(\angle C) = 30^\circ$, X , Y and Z are midpoints of \overline{AB} , \overline{BC} and \overline{XY} respectively and $AC = 8$ cm.

Find : The length of each of \overline{AB} , \overline{XY} , \overline{BZ}

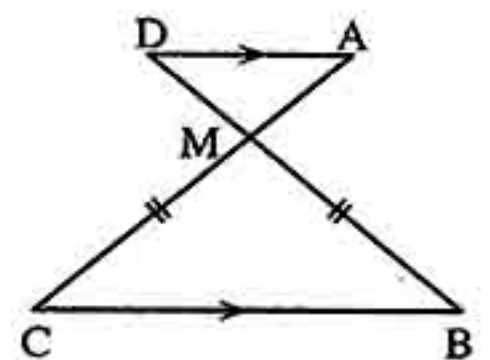


[b] In the opposite figure :

$\overline{AC} \cap \overline{BD} = \{M\}$

$MB = MC$ and $\overline{AD} \parallel \overline{BC}$

Prove that : $MA = MD$



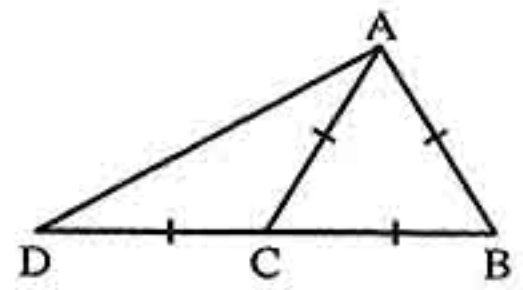
Geometry

5 In the opposite figure :

ABC is an equilateral triangle

, $D \in \overline{BC}$ such that $BC = CD$

Prove that : $\overline{BA} \perp \overline{AD}$



Alexandria Governorate

Middle Educational Directorate
Math's Supervision



Answer the following questions :

1 Choose the correct answer :

- ① The isosceles triangle has of symmetry.
(a) one axis (b) two axes (c) three axes (d) zero axes
- ② In $\triangle ABC$, if $m(\angle A) = 125^\circ$, then the longest side of it is
(a) \overline{AB} (b) \overline{AC} (c) \overline{BC} (d) its median
- ③ If XYZ is an isosceles triangle , $m(\angle Y) = 100^\circ$, then $m(\angle X) =$
(a) 80° (b) 40° (c) 20° (d) 100°
- ④ In $\triangle ABC$ if $m(\angle A) = 30^\circ$, $m(\angle B) = 90^\circ$, then $BC =$ AC
(a) $\frac{1}{2}$ (b) $\frac{2}{3}$ (c) $\frac{1}{3}$ (d) 2
- ⑤ The measure of each exterior angle of equilateral triangle is
(a) 180° (b) 360° (c) 60° (d) 120°

2 Complete :

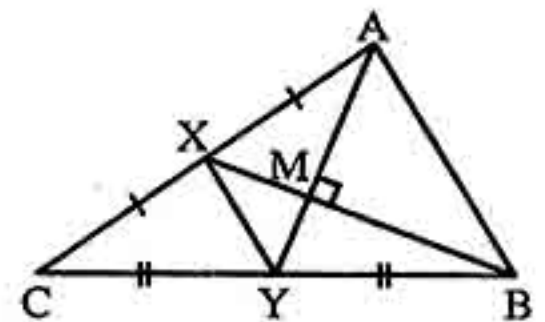
- ① The point of concurrence divides each median in the ratio from the base.
- ② The longest side in the right angled triangle is
- ③ The sum of measures of the exterior angles of a square is $^\circ$
- ④ The numbers 8 , 4 , can be lengths of sides of an isosceles triangle.
- ⑤ The axis of symmetry of a line segment is the straight line which is

3 [a] In the opposite figure :

\overline{AY} and \overline{BX} are two medians where $\overline{AY} \perp \overline{BX}$

, if $AY = 12$ cm. and $XM = 5$ cm.

Find : The area of $\triangle ABM$

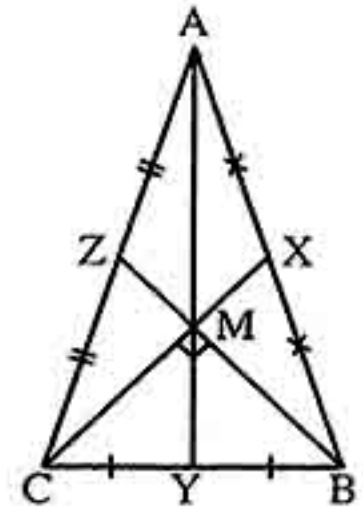


[b] ABC is a triangle in which : $m(\angle A) = 6x^\circ$, $m(\angle B) = (4x - 9)^\circ$ and $m(\angle C) = 3(x - 2)^\circ$ Arrange the lengths of sides descendingly.

4 [a] In the opposite figure :

\overline{BZ} and \overline{CX} are two medians of $\triangle ABC$
 $\overline{CX} \perp \overline{BZ}$

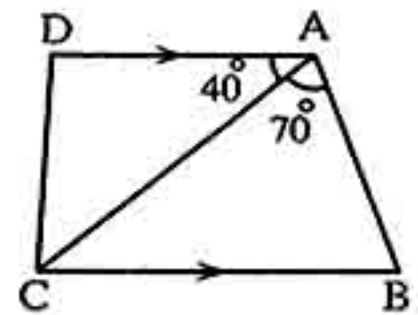
Prove that : $AM = MC$



[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $m(\angle DAC) = 40^\circ$
 $m(\angle BAC) = 70^\circ$

Prove that : $BC = AC$



5 [a] In the opposite figure :

$AB = AC$

Prove that : $EC > EF$

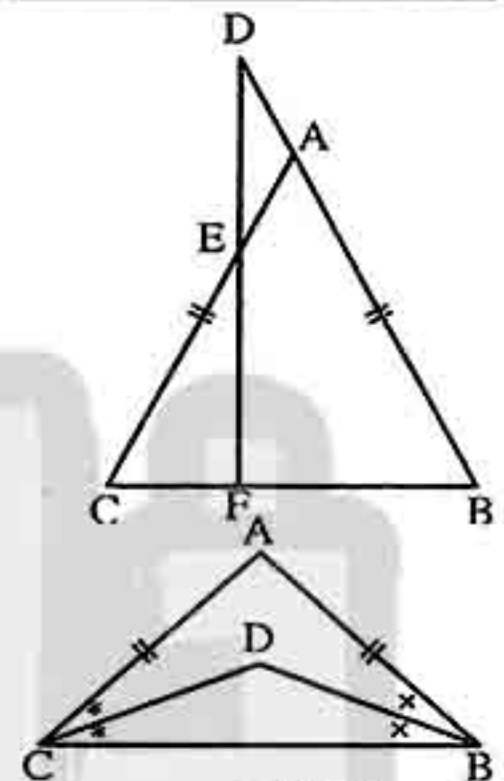
[b] In the opposite figure :

$AB = AC$

\overline{BD} bisects $\angle B$

\overline{CD} bisects $\angle C$

Prove that : $BD = CD$



Alexandria Governorate

East Educational Zone
Mathematics Directing



Answer the following questions :

1 Complete the following :

- ① If ABCD is a parallelogram and $m(\angle A) = 70^\circ$, then $m(\angle B) = \dots\dots\dots^\circ$
- ② The measure of the exterior angle in the equilateral triangle = $\dots\dots\dots^\circ$
- ③ The length of the median from the vertex of the right angle in the right-angled triangle = $\dots\dots\dots$
- ④ If $AB = AC$ in $\triangle ABC$ and $m(\angle B) = 40^\circ$, then $m(\angle C) = \dots\dots\dots^\circ$
- ⑤ In $\triangle XYZ$, if $XY < YZ < ZX$, then the greatest angle in measure is $\angle \dots\dots\dots$

2 Choose the correct answer from those given :

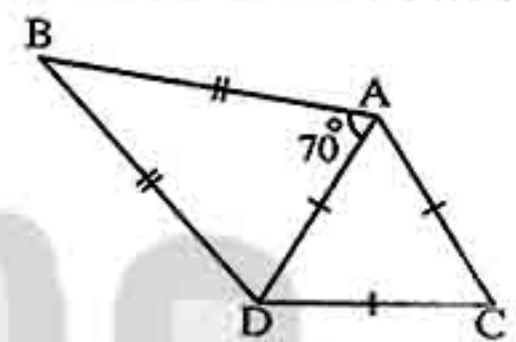
- ① The diagonals are perpendicular in $\dots\dots\dots$
 - (a) square and rectangle.
 - (b) rectangle and rhombus.
 - (c) square and rhombus.
 - (d) parallelogram and rectangle.

Geometry

- (2) The point of the intersection of the medians in triangle divides each median from the base into the ratio
- (a) 1 : 2 (b) 2 : 1 (c) 3 : 1 (d) 2 : 3
- (3) The isosceles triangle has axis of symmetry.
- (a) 0 (b) 1 (c) 2 (d) 3
- (4) If the lengths of two sides in an isosceles triangle 3 cm. and 7 cm. , then the length of the third side = cm.
- (a) 3 (b) 4 (c) 7 (d) 10
- (5) In $\triangle ABC$, if $m(\angle A) < m(\angle B)$, then
- (a) $AC < BC$ (b) $AC > BC$ (c) $AC = BC$ (d) $\overline{AC} \parallel \overline{BC}$

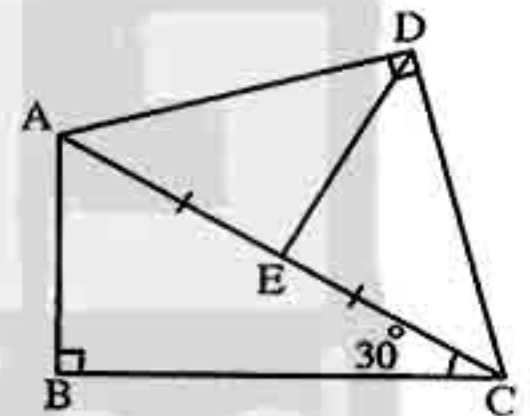
3 [a] In the opposite figure :

$AB = BD$, $m(\angle BAD) = 70^\circ$
 , $\triangle ADC$ is an equilateral triangle.
Find : $m(\angle BDC)$



[b] In the opposite figure :

$m(\angle ABC) = m(\angle ADC) = 90^\circ$
 , $m(\angle ACB) = 30^\circ$
 , E is the midpoint of \overline{AC}
Prove that : $AB = ED$

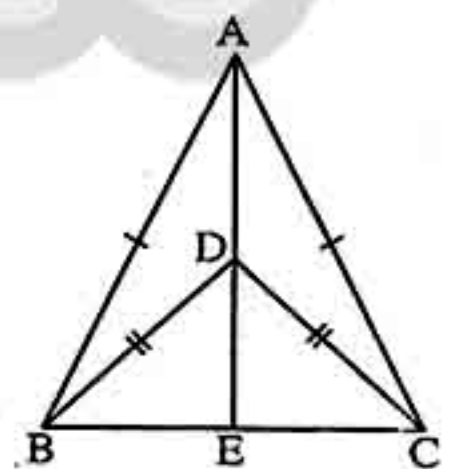


4 [a] In the opposite figure :

$AB = AC$, $DB = DC$, $D \in \overline{AE}$

Prove that :

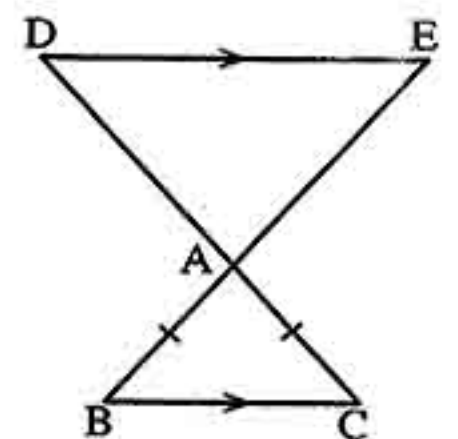
- ① $\overline{AE} \perp \overline{BC}$
 ② $BE = EC$



[b] In the opposite figure :

$AB = AC$ and $\overline{DE} \parallel \overline{BC}$

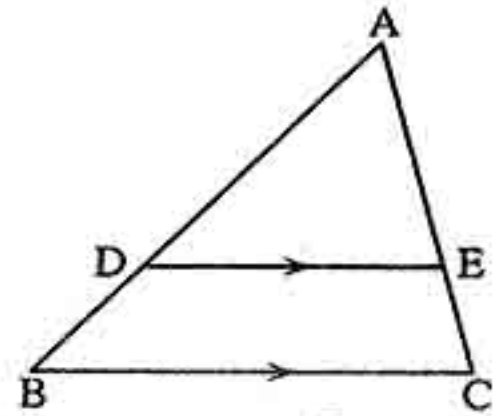
Prove that : $AD = AE$



5 [a] In the opposite figure :

$$AB > AC, \overline{DE} \parallel \overline{BC}$$

Prove that : $AD > AE$



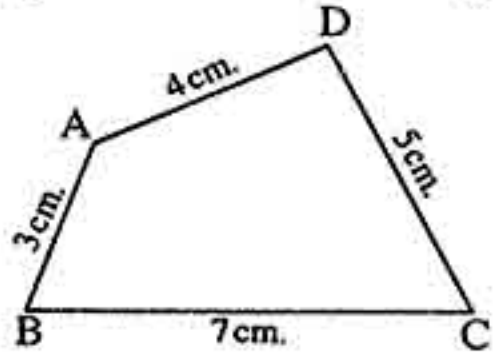
[b] In the opposite figure :

ABCD is a quadrilateral in which :

$$AB = 3 \text{ cm.}, BC = 7 \text{ cm.}$$

$$, CD = 5 \text{ cm. and } DA = 4 \text{ cm.}$$

Prove that : $m(\angle BAD) > m(\angle BCD)$



8 El-Kalyoubia Governorate

Al-Obour Educational Zone
Al-Resala Language School



Answer the following questions :

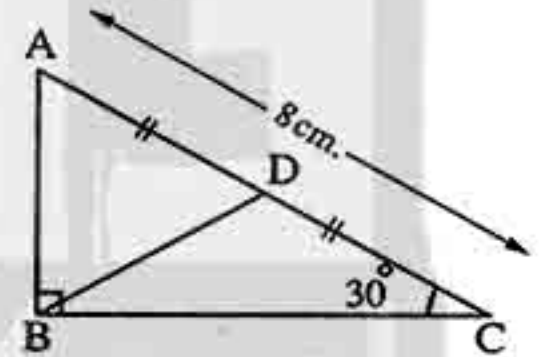
1 Complete the following :

(1) The bisector of the vertex angle of an isosceles triangle bisect the base and

(2) 3 cm. , 8 cm. and cm. are three sides of an isosceles triangle.

(3) In the opposite figure :

The perimeter of $\triangle ABD = \dots\dots\dots$ cm.



(4) The measure of the exterior angle of the equilateral triangle =°

(5) In $\triangle ABC$, $m(\angle A) = 100^\circ$, then the longest side is

2 Choose the correct answer :

(1) In $\triangle ABC$, if $m(\angle B) = 90^\circ$ and $m(\angle A) = 30^\circ$, then $BC = \dots\dots\dots$

- (a) $\frac{1}{2} AC$ (b) $2 AC$ (c) $2 AB$ (d) $\frac{1}{2} AB$

(2) If A \in the axis of symmetry of \overline{BC} , then $AB = \dots\dots\dots$

- (a) XY (b) XZ (c) AC (d) BC

(3) The triangle whose side length are 2 cm. , $(X + 3)$ cm. and 5 cm. becomes an isosceles triangle when $X = \dots\dots\dots$ cm.

- (a) zero (b) 1 (c) 2 (d) 3

(4) The number of axis of symmetry of the equilateral triangle =

- (a) zero (b) 1 (c) 2 (d) 3

Geometry

(5) The sum of the lengths of any two sides in the triangle the length of the third side.

(a) <

(b) \leq (c) \geq

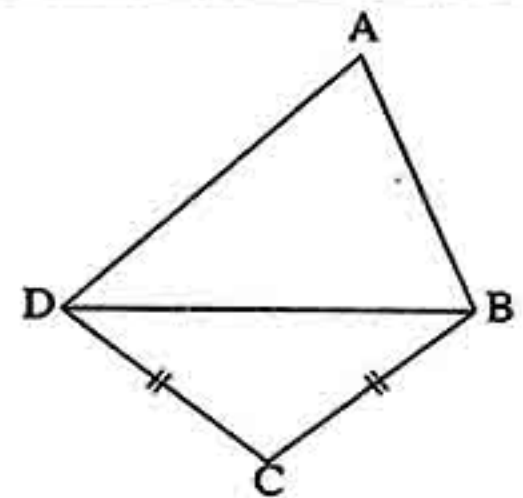
(d) >

(e) =

3 [a] In the opposite figure :

ABCD is a quadrilateral in which $AD > AB$ and $BC = CD$

Prove that : $m(\angle ABC) > m(\angle ADC)$



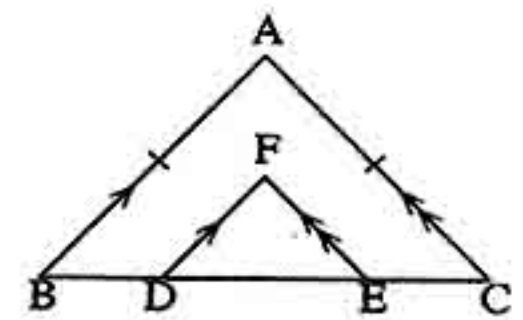
[b] In the opposite figure :

$D \in \overline{BC}$, $E \in \overline{BC}$

, $\overline{AB} \parallel \overline{FD}$ and $\overline{AC} \parallel \overline{FE}$

, if $AB = AC$

Prove that : FDE is an isosceles triangle.



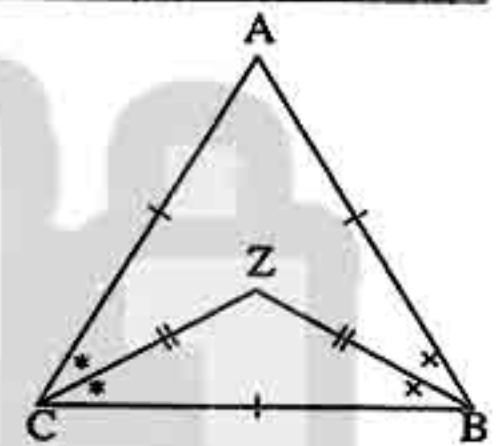
4 [a] In the opposite figure :

$\triangle ABC$ is an equilateral triangle

, \overline{BZ} bisects $\angle B$

, \overline{CZ} bisects $\angle C$

Find : The measure of the angles in triangle CZB



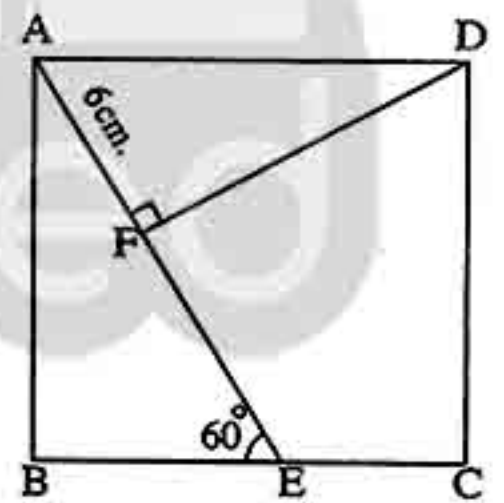
[b] In the opposite figure :

ABCD is a square

, $m(\angle AEB) = 60^\circ$

, $AF = 6 \text{ cm}$, $\overline{DF} \perp \overline{AE}$

Find : The perimeter of the square ABCD



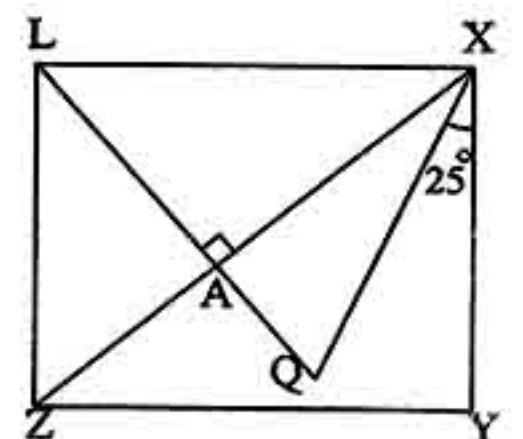
5 [a] In the opposite figure :

XYZL is a rectangle in which $m(\angle YXQ) = 25^\circ$

, $\overline{LQ} \perp \overline{XZ}$

, \overline{XQ} bisects angle YXZ

Prove that : $LQ = XL$



[b] In $\triangle ABC$, $m(\angle A) = 40^\circ$, $m(\angle B) = 80^\circ$

Arrange the length of the sides of the triangle ABC in a descending order.

9

El-Monofia Governorate

Maths Supervision



Answer the following questions :

1 Complete :

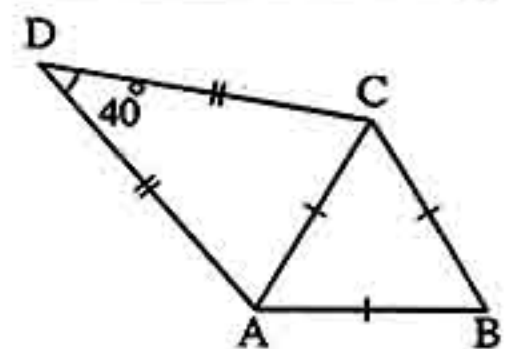
- ① The perpendicular which is drawn from vertex of an isosceles triangle to its base and
- ② The length of the median from the vertex of the right-angled triangle equals
- ③ In $\triangle ABC$, if $AB = AC$ and $m(\angle A) = 80^\circ$, then $m(\angle B) = \dots\dots\dots^\circ$
- ④ The measure of the exterior angle of the equilateral triangle = $\dots\dots\dots^\circ$
- ⑤ In $\triangle DEF$, if $DE > DF$, then $m(\angle F) > \dots\dots\dots$

2 Choose the correct answer :

- ① If the length of two sides in an isosceles triangle are 8 cm. and 4 cm. , then the length of the third side is cm.
(a) 4 (b) 8 (c) 3 (d) 12
- ② The number of axes of symmetry in the isosceles triangle =
(a) 1 (b) 0 (c) 2 (d) 3
- ③ \overline{AD} is a median in $\triangle ABC$, M is the point of intersection of the medians , $MD = 2$ cm. , then $AD = \dots\dots\dots$ cm.
(a) 2 (b) 4 (c) 6 (d) 8
- ④ $\triangle ABC$: $m(\angle B) = 125^\circ$, then the longest side of it is
(a) \overline{BC} (b) \overline{AC} (c) \overline{AB} (d) its median
- ⑤ In $\triangle XYZ$, if $m(\angle Y) = 90^\circ$, $m(\angle X) = 30^\circ$ and $XZ = 20$ cm. , then $ZY = \dots\dots\dots$ cm.
(a) 12 (b) 6 (c) 24 (d) 10

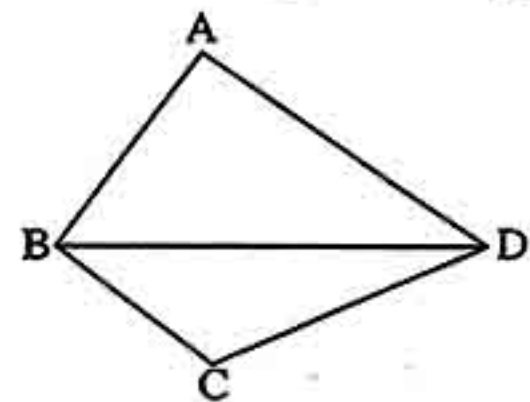
3 [a] In the opposite figure :

$m(\angle D) = 40^\circ$, $DA = DC$
and $\triangle ABC$ is an equilateral triangle
Find : $m(\angle DCB)$



[b] In the opposite figure :

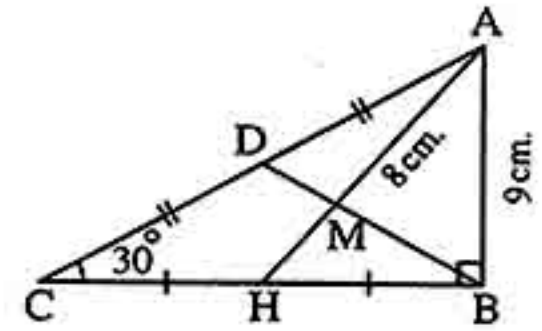
$AB < AD$ and $BC < CD$
Prove that : $m(\angle ABC) > m(\angle ADC)$



Geometry

4 [a] In the opposite figure :

D and H are the midpoints of \overline{AC} and \overline{CB} respectively
 $m(\angle C) = 30^\circ$, $m(\angle B) = 90^\circ$, $AB = 9$ cm. , $AM = 8$ cm.
Find : The length of each of \overline{BD} , \overline{AH} and \overline{MD}

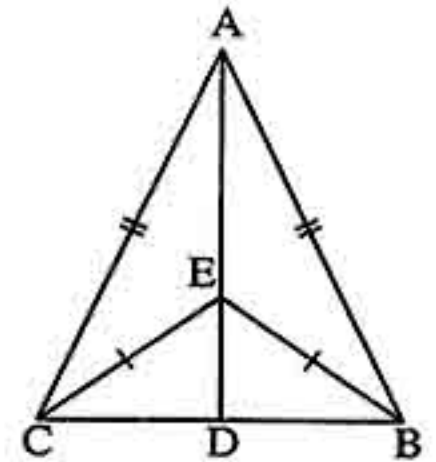


[b] In the opposite figure :

$AB = AC$ and $EB = EC$

Prove that :

- ① \overrightarrow{AE} is the axis of \overline{BC}
- ② $BD = CB$

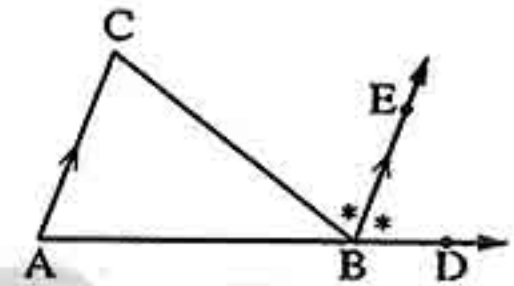


5 [a] In the opposite figure :

$D \in \overline{AB}$, \overrightarrow{BE} bisects $\angle CBD$
 and $\overrightarrow{BE} \parallel \overline{AC}$

Prove that :

$\triangle ABC$ is an isosceles triangle,



[b] In $\triangle ABC$: $m(\angle A) = 40^\circ$ and $m(\angle B) = 80^\circ$

Arrange the lengths of the sides of the triangle ABC descendingly.

10 El-Dakahlia Governorate

Math's Supervision (L.E.S.)



Answer the following questions :

1 Complete :

- ① The number of axes of symmetry of isosceles triangle is
- ② The bisector of the vertex angle of the isosceles triangle
- ③ The medians of the triangle at one point.
- ④ The longest side of the right-angled triangle is the
- ⑤ In $\triangle ABC$, if $AB = AC$ and $m(\angle C) = 40^\circ$, then $m(\angle A) = \dots\dots\dots^\circ$

2 Choose the correct answer :

- ① Isosceles triangle whose side lengths are 4 cm. , $(x + 3)$ cm. and 8 cm. , then $x = \dots\dots\dots$
 (a) 4 (b) 5 (c) 3 (d) 8
- ② In $\triangle LMN$, if $m(\angle M) = 55^\circ$ and $m(\angle N) = 80^\circ$, then $LM \dots\dots\dots MN$
 (a) < (b) > (c) = (d) twice

- (3) The measure of the exterior angle of the equilateral triangle =°
 (a) 30 (b) 60 (c) 90 (d) 120
- (4) The base angles of the isosceles triangle are
 (a) alternating (b) corresponding (c) congruent (d) supplementary
- (5) If \overline{AD} is a median of $\triangle ABC$ and M is the point of concurrence of the medians, then $MD = \dots\dots\dots AD$
 (a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{1}{2}$ (d) $\frac{1}{4}$

[3] [a] In the opposite figure :

$$m(\angle ABC) = m(\angle BDE) = 90^\circ$$

$$, m(\angle E) = 30^\circ$$

, D is the midpoint of \overline{AC}

Prove that : $AC = BE$

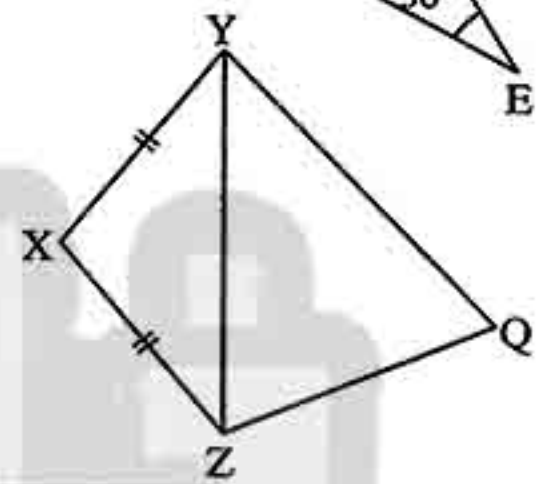
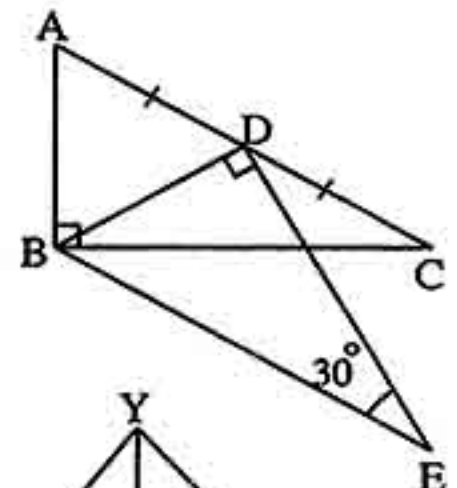
[b] In the opposite figure :

$$XY = XZ$$

$$, QY > QZ$$

Prove that :

$$m(\angle XZQ) > m(\angle XYQ)$$



[4] [a] In the opposite figure :

$$X \in \overline{BC}, \overline{BC} \parallel \overline{PQ}$$

$$, m(\angle P) = 110^\circ$$

$$, m(\angle A) = 40^\circ$$

Prove that : $AB = AC$

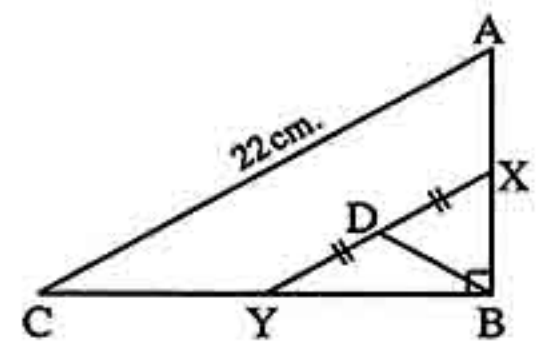
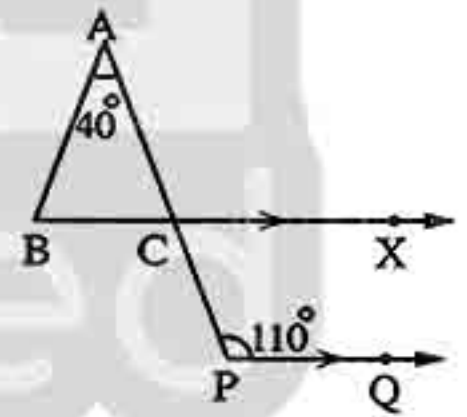
[b] In the opposite figure :

$$m(\angle ABC) = 90^\circ$$

X, Y, D are midpoints of \overline{AB} , \overline{BC} , \overline{XY} respectively.

$$AC = 22 \text{ cm.}$$

Find : BD

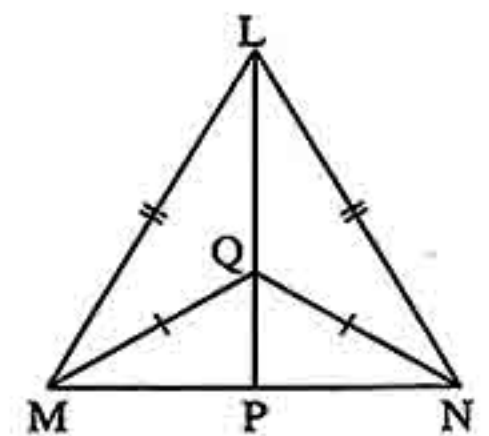


[5] [a] In the opposite figure :

$$LM = LN$$

$$, QM = QN$$

Prove that : $MP = NP$



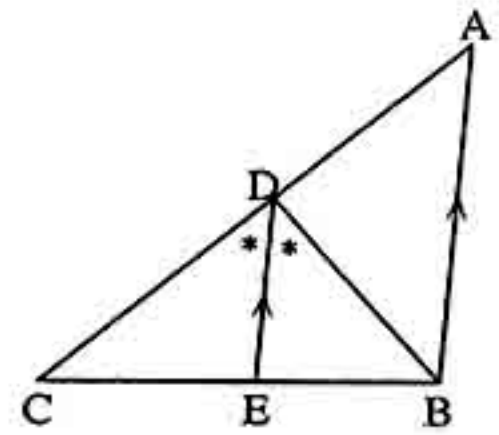
Geometry

[b] In the opposite figure :

\overline{DE} bisects $\angle BDC$ and $\overline{DE} \parallel \overline{AB}$

Prove that :

$AC > BC$



11

Ismailia Governorate

Directorate of Education
Directorate of Math's



Answer the following questions :

1 Choose the correct answer :

(1) In the opposite figure :

If $m(\angle A) = 90^\circ$, \overline{AD} is a median,
M is the point of intersection of its medians
and $BC = 18$ cm., then $MA = \dots\dots\dots$ cm.

- (a) 9 cm. (b) 3 cm. (c) 6 cm. (d) 18 cm.

(2) In $\triangle XYZ$, if $m(\angle Y) < m(\angle Z)$, then $XY \dots\dots\dots XZ$

- (a) = (b) < (c) > (d) twice

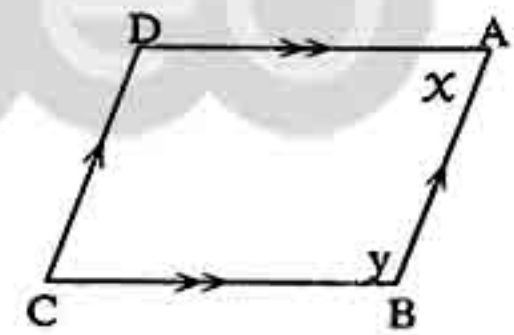
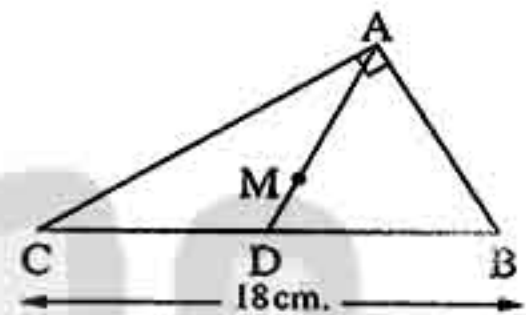
(3) If the measures of two angles of a triangle are 65° and 50° , then the triangle is

- (a) scalene (b) equilateral (c) isosceles (d) right angled

(4) If ABCD is a parallelogram, $x : y = 1 : 2$

, then $m(\angle C) = \dots\dots\dots^\circ$

- (a) 60° (b) 120°
(c) 180° (d) 360°



(5) If 10 cm., 5 cm. and x cm. are side lengths of an isosceles triangle, then $x = \dots\dots\dots$ cm.

- (a) 10 (b) 5 (c) 15 (d) 4

2 Complete :

(1) Number of axes of symmetry of an equilateral triangle =

(2) The perpendicular from the vertex angle of an isosceles triangle bisects each of
and

(3) In $\triangle ABC$, if $AB = 3$ cm. and $BC = 5$ cm., then $AC \in] \dots\dots\dots , \dots\dots\dots [$

④ If ABCD is a square , then $m(\angle ACB) = \dots\dots\dots^\circ$

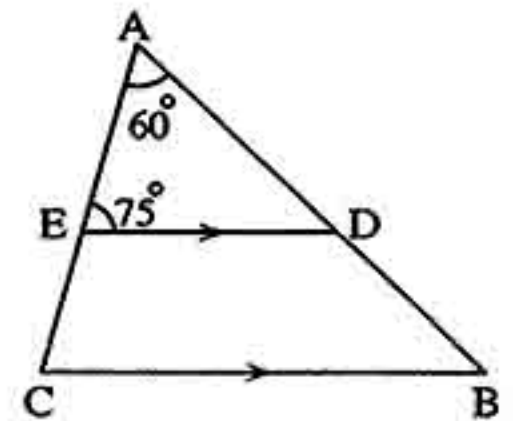
⑤ If $A \in L$ where L is the axis of symmetry of \overline{BC} , then $AB \dots\dots\dots AC$

3 [a] In the opposite figure :

$$\overline{ED} \parallel \overline{BC}$$

$$, m(\angle A) = 60^\circ \text{ and } m(\angle AED) = 75^\circ$$

Prove that : $AB > AC$

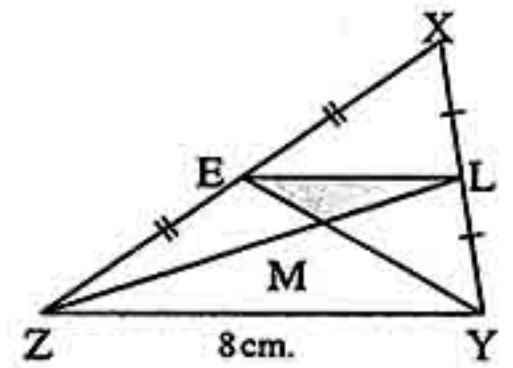


[b] In the opposite figure :

$\triangle XYZ$ in which : L and E are midpoints
of \overline{XY} and \overline{XZ} respectively.

$$\overline{YE} \cap \overline{ZL} = \{M\}, YZ = 8 \text{ cm.}, YM = 4 \text{ cm. and } ZL = 9 \text{ cm.}$$

Find : The perimeter of $\triangle EML$



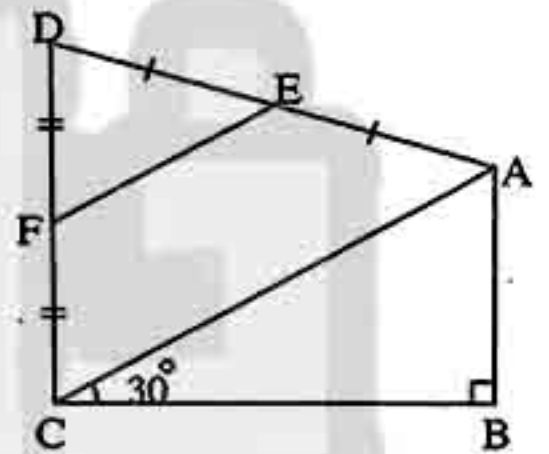
4 [a] In the opposite figure :

$$m(\angle B) = 90^\circ, m(\angle ACB) = 30^\circ$$

E is the midpoint of \overline{AD}

and F is the midpoint of \overline{CD}

Prove that : $AB = EF$

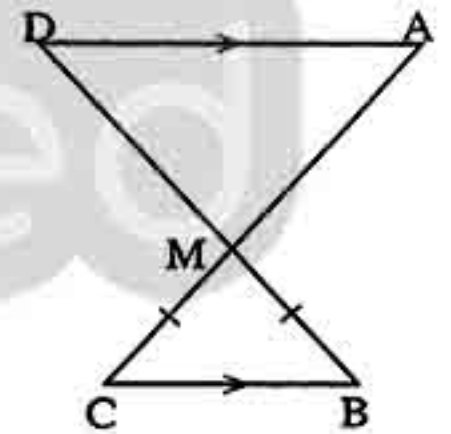


[b] In the opposite figure :

$$\text{If } \overline{AC} \cap \overline{BD} = \{M\}$$

$$, \overline{AD} \parallel \overline{BC} \text{ and } MB = MC$$

Prove that : $\triangle MAD$ is an isosceles.



5 [a] In $\triangle ABC$: If $m(\angle A) = 50^\circ$ and $m(\angle B) = 85^\circ$

Find : $m(\angle C)$, then arrange the lengths of its sides ascendingly.

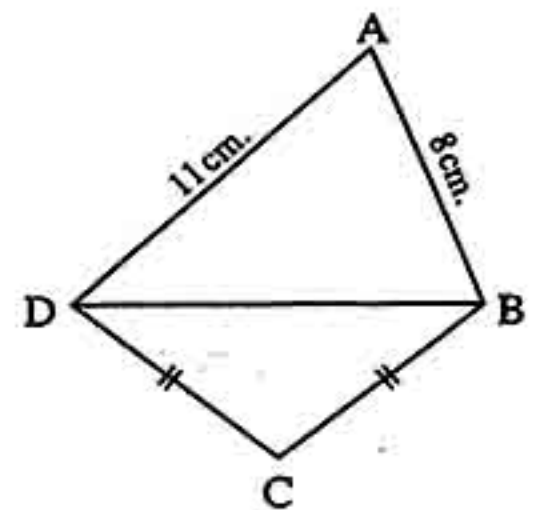
[b] In the opposite figure :

ABCD is a quadrilateral

$$, AD = 11 \text{ cm.}, AB = 8 \text{ cm.}$$

$$\text{and } CB = CD$$

Prove that : $m(\angle ABC) > m(\angle ADC)$



Geometry

12

Damietta Governorate

Damietta Inspection of Mathematic
Official Language Schools

Answer the following questions :

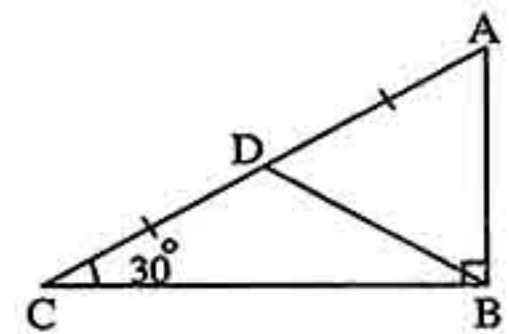
1 Choose the correct answer :

- (1) In $\triangle ABC$: $m(\angle B) = 80^\circ$ and $m(\angle C) = 50^\circ$, then $AB = \dots\dots\dots$
 (a) BC (b) AC (c) $2AC$ (d) $\frac{1}{2}BC$
- (2) The lengths 6 cm. , 7 cm. and $\dots\dots\dots$ can be lengths of the sides of a triangle.
 (a) 15 cm. (b) 13 cm. (c) 18 cm. (d) 11 cm.
- (3) In $\triangle ABC$, if $m(\angle A) = 30^\circ$ and $m(\angle B) = 90^\circ$, then $AC = \dots\dots\dots$
 (a) $\frac{1}{2}BC$ (b) $2BC$ (c) $2AB$ (d) BC
- (4) The point of intersection of the medians of the triangle divides each of them with ratio $\dots\dots\dots$ from the vertex.
 (a) 1 : 2 (b) 3 : 1 (c) 2 : 1 (d) 1 : 3
- (5) In $\triangle ABC$, $m(\angle A) = 50^\circ$ and $m(\angle B) = 100^\circ$ then $\dots\dots\dots$
 (a) $AB > AC$ (b) $AC < AB$ (c) $BC < AC$ (d) $AB = BC$

2 Complete :

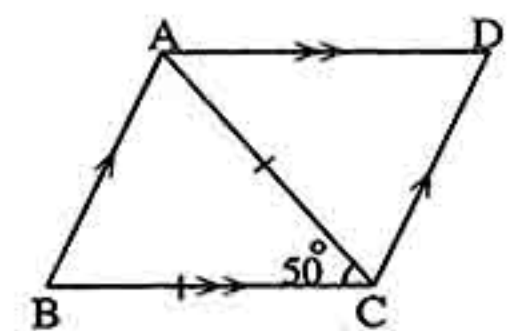
- (1) The measure of exterior angle of the equilateral triangle = $\dots\dots\dots^\circ$
- (2) If $\triangle ABC \equiv \triangle XYZ$, then $\angle A \equiv \dots\dots\dots$
- (3) The longest side in a right-angled triangle is $\dots\dots\dots$
- (4) If \overleftrightarrow{XY} is an axis of symmetry of \overline{AB} , $D \in \overleftrightarrow{XY}$, then $AD = \dots\dots\dots$
- (5) Square with side length 5 cm. , then its area = $\dots\dots\dots \text{cm}^2$

3 [a] In the opposite figure :

D is a midpoint of \overline{AC} $m(\angle B) = 90^\circ$, $m(\angle ACB) = 30^\circ$ Prove that : $\triangle ABD$ is an equilateral triangle

[b] In the opposite figure :

ABCD is a parallelogram

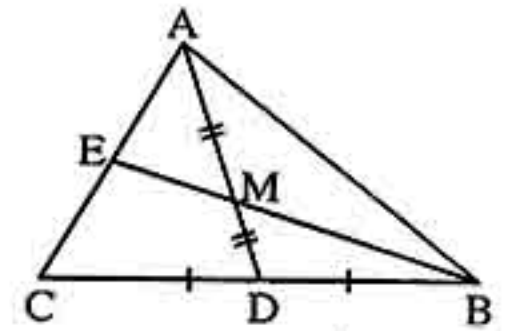
 $CA = CB$ and $m(\angle ACB) = 50^\circ$ Find with proof : $m(\angle D)$ 

4 [a] In the opposite figure :

E and D are the midpoints of \overline{AC} and \overline{CB} respectively

If $AD = 4.5$ cm and $BM = 4$ cm.

Find : The length of each of \overline{MD} and \overline{BE}



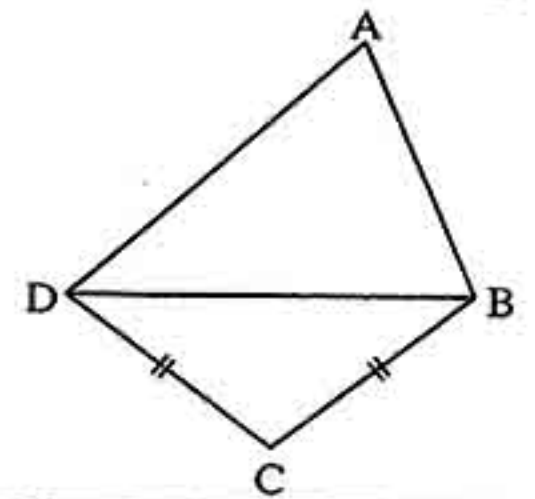
[b] In the opposite figure :

ABCD is a quadrilateral in which : $AD > AB$

and $BC = CD$

Prove that :

$m(\angle ABC) > m(\angle ADC)$



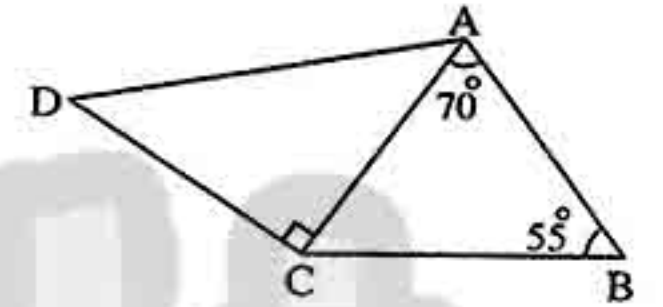
5 [a] ABC is a triangle in which : $m(\angle A) = 40^\circ$ and $m(\angle B) = 75^\circ$
Arrange the lengths of sides of $\triangle ABC$ in ascending order.

[b] In the opposite figure :

$m(\angle BAC) = 70^\circ$, $m(\angle B) = 55^\circ$

and $m(\angle ACD) = 90^\circ$

Prove that : $AD > AB$



13 El-Behira Governorate

Maths Inspection



Answer the following questions :

1 Complete the following :

- (1) If the length of two sides of isosceles triangle are 8 cm. and 4 cm. , then the length of the third side is
- (2) The number of axis of symmetry of scalene triangle is
- (3) The length of the median of the right-angled triangle from the vertex of right angle equals the length of the hypotenuse.
- (4) The base angles of the isosceles triangle are in measure.
- (5) In $\triangle ABC$, if $m(\angle A) = 40^\circ$ and $m(\angle B) = 60^\circ$, then the longest side is

2 Choose the correct answer :

- (1) If A lies on the line of symmetry of \overline{BC} then AB AC
(a) $>$ (b) $<$ (c) $=$ (d) $//$
- (2) The measure of the exterior angle of the equilateral triangle =
(a) 90° (b) 60° (c) 120° (d) 180°
- (3) In $\triangle ABC$, if $BC > AC$, then $m(\angle A)$ $m(\angle B)$
(a) $>$ (b) $<$ (c) $=$ (d) \geq

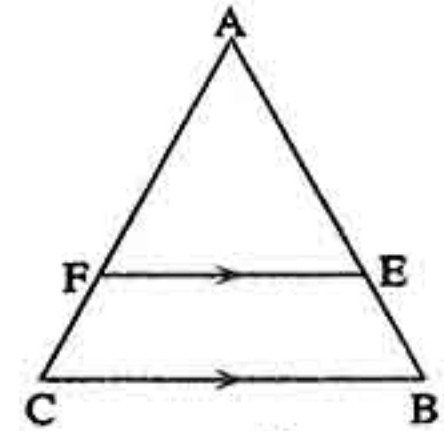
Geometry

- (4) If $\triangle ABC$ is a right-angled triangle at B and $m(\angle C) = 30^\circ$, then $AB = \dots\dots\dots AC$
 (a) 2 (b) $\frac{1}{2}$ (c) $\frac{1}{3}$ (d) 3
- (5) The sum of lengths of two sides of a triangle is $\dots\dots\dots$ the length of the third side.
 (a) greater than (b) less than (c) equal (d) greater than or equal

3 [a] In the opposite figure :

$$AB = AC, \overline{EF} \parallel \overline{CB}$$

Prove that : $AE = AF$



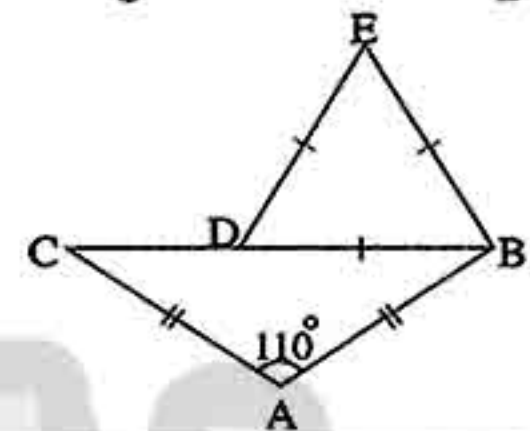
[b] In the opposite figure :

$$EB = ED = DB$$

$$, AB = AC$$

$$\text{and } m(\angle A) = 110^\circ$$

Find : $m(\angle ABE)$

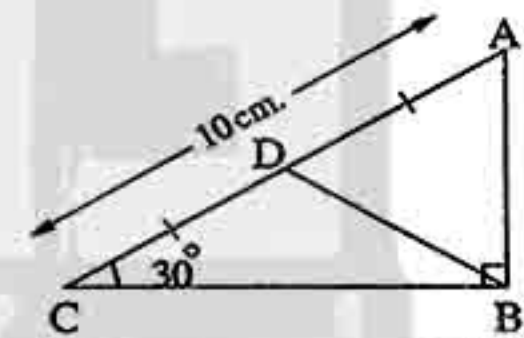


- 4 [a] In $\triangle ABC$, if $m(\angle A) = 50^\circ$ and $m(\angle B) = 60^\circ$
 Arrange the side lengths of $\triangle ABC$ ascendingly.

[b] In the opposite figure :

$$m(\angle ABC) = 90^\circ, m(\angle C) = 30^\circ, AD = DC \text{ and } AC = 10 \text{ cm.}$$

Find : The perimeter of $\triangle ABD$



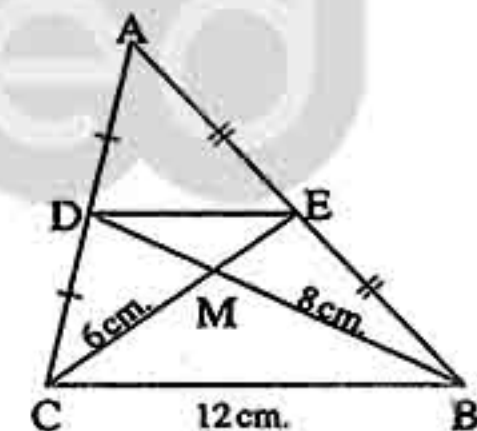
5 In the opposite figure :

$$AE = EB, AD = DC$$

$$, MB = 8 \text{ cm.}, MC = 6 \text{ cm.}$$

$$\text{and } BC = 12$$

Find : The perimeter of $\triangle MED$



14 El-Minia Governorate

El-Minia Directorate of Education
 Governmental languages schools



Answer the following questions :

1 Complete the following : (Calculator is allowed)

- (1) The number of axes of symmetry in the equilateral triangle equals $\dots\dots\dots$
- (2) If the length of two sides in a triangle are 2 cm. and 7 cm.
 , then $\dots\dots\dots < \text{length of third side} < \dots\dots\dots$

- (3) The length of median which drawn from the vertex of the right-angle in the right-angled triangle equals
- (4) If the measure of an angle in an isosceles triangle is 60° , then the triangle is
- (5) The length of the side opposite to the angle of measure 30° in the right-angled triangle equals

2 Choose the correct answer :

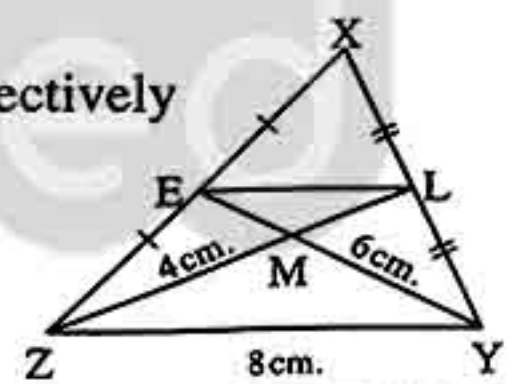
- (1) XYZ is a triangle in which : $m(\angle Z) = 70^\circ$ and $m(\angle Y) = 60^\circ$ then YZ XY
 (a) $>$ (b) $<$ (c) $=$ (d) twice
- (2) The numbers which can be lengths of sides of triangle are
 (a) 0 , 3 , 5 (b) 3 , 3 , 5 (c) 3 , 3 , 6 (d) 3 , 3 , 7
- (3) The measure of the exterior angle of the equilateral triangle equals $^\circ$
 (a) 60 (b) 30 (c) 100 (d) 120
- (4) If the length of two sides in an isosceles triangle are 8 cm. and 4 cm. , then the length of the third side is cm.
 (a) 4 (b) 8 (c) 3 (d) 12
- (5) If $\triangle ABC$ is a right-angled at B , $AB = 6$ cm. and $BC = 8$ cm. , then the length of the median drawn from B is cm.
 (a) 10 (b) 8 (c) 6 (d) 5

- 3 [a]** In $\triangle ABC$, $AB = 7$ cm. , $BC = 5$ cm. and $AC = 6$ cm.
 Arrange its angles measures ascendingly.

[b] In the opposite figure :

$\triangle XYZ$ in which : L and E are the midpoints of \overline{XY} and \overline{XZ} respectively
 $\overline{YE} \cap \overline{ZL} = \{M\}$
 $YZ = 8$ cm. , $YM = 6$ cm. , $ZM = 4$ cm.

Find : The perimeter of $\triangle MLE$



4 [a] In the opposite figure :

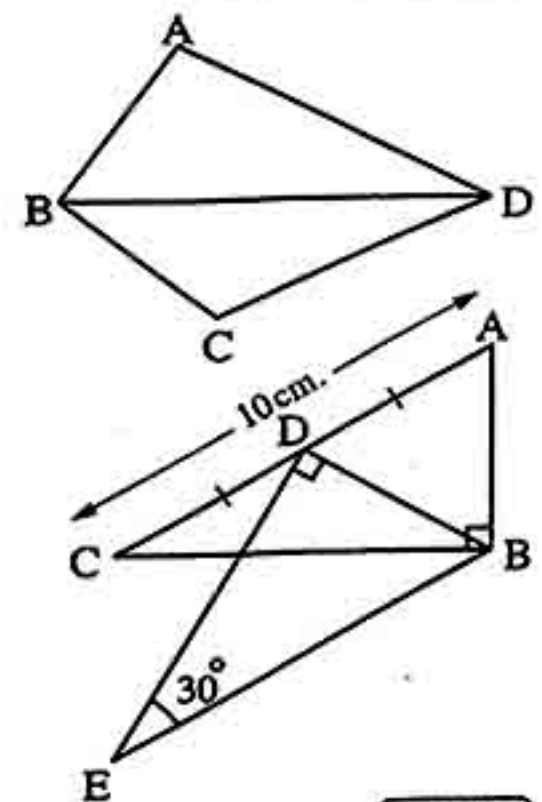
$AB < AD$, $BC < CD$

Prove that : $m(\angle ABC) > m(\angle ADC)$

[b] In the opposite figure :

$m(\angle ABC) = m(\angle BDE) = 90^\circ$
 D is the midpoint of \overline{AC}
 $m(\angle E) = 30^\circ$ and $AC = 10$ cm.

Find : The length of \overline{BE}



Geometry

5 [a] In the opposite figure :

$AB = AC$, \overrightarrow{BD} bisects $\angle B$
and \overrightarrow{CD} bisects $\angle C$

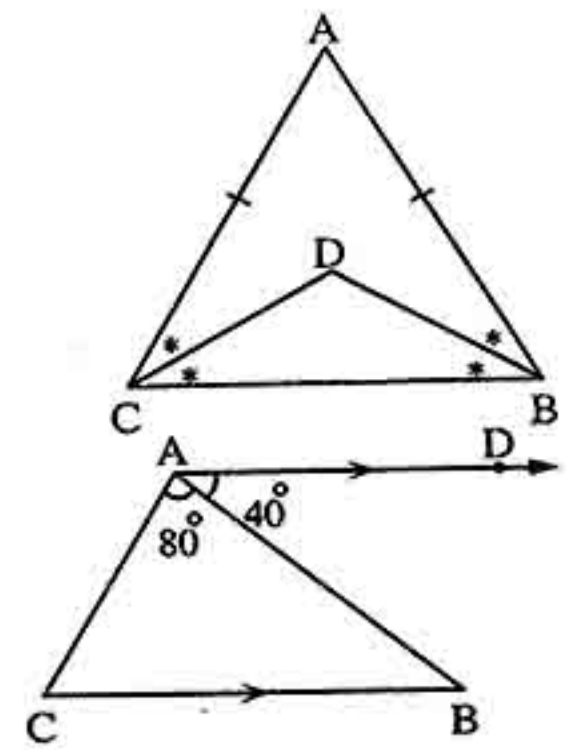
Prove that : $\triangle DBC$ is an isosceles triangle.

[b] In the opposite figure :

$\triangle ABC$ in which : $\overrightarrow{AD} \parallel \overrightarrow{CB}$

, $m(\angle DAB) = 40^\circ$ and $m(\angle BAC) = 80^\circ$

Prove that : $AB > AC$



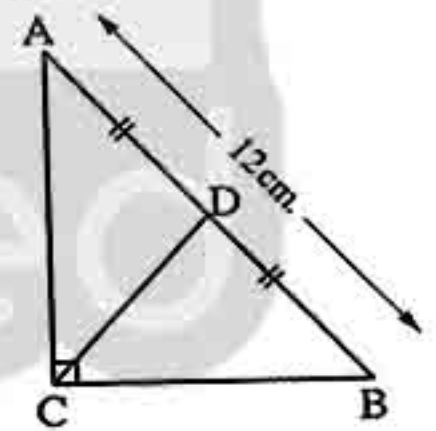
15 South Sinai Governorate

Educational Directorate
Tur Sinai Educational Zone

Answer the following questions :

1 Choose the correct answer from given answers :

- (1) In isosceles triangle the base angles are
(a) complementary. (b) supplementary. (c) adjacent. (d) congruent.
- (2) The sum of the lengths of the two sides of the triangle the length of the third side.
(a) double (b) equals (c) greater than (d) less than
- (3) In the opposite figure :
If $AB = 12$ cm.
, then $CD =$ cm.
(a) 12 (b) 9
(c) 6 (d) 3
- (4) The triangle that has one axis of symmetry is triangle.
(a) an equilateral (b) an isosceles (c) a scalene (d) a right-angled
- (5) The is a parallelogram where one of its angles is right angle.
(a) a rectangle (b) a square (c) a rhombus (d) a trapezium



2 Complete the following :

- (1) The point that divides the median of the triangle in the ratio 1 : 2 from the base is the point of intersection of
- (2) In $\triangle ABC$, if $AB > BC$, then $m(\angle A) < m(\angle \dots)$
- (3) The sum of the measures of accumulative angles at point is°

- (4) ABC is a triangle in which : $m(\angle B) = 130^\circ$, then the longest side of its sides is
- (5) In the right-angled triangle , the length of the side that opposite to the angle of measure $30^\circ = \dots\dots\dots$ the length of the hypotenuse.

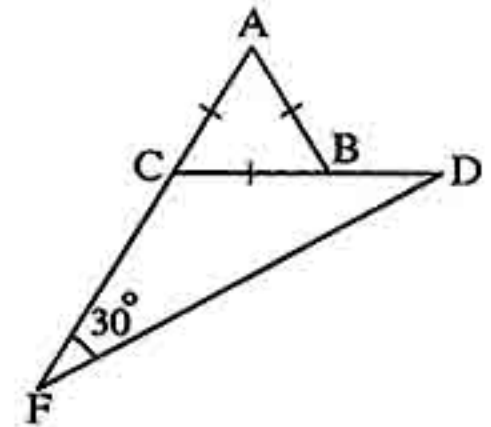
3 [a] In the opposite figure :

ABC is an equilateral triangle

, $F \in \overrightarrow{AC}$, $D \in \overrightarrow{CB}$

, $m(\angle DFC) = 30^\circ$

Prove that : $\triangle DCF$ is an isosceles triangle.



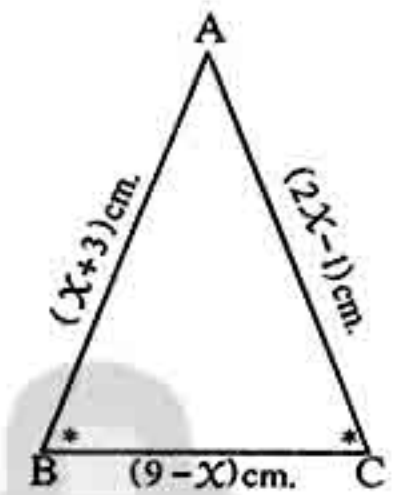
[b] In the opposite figure :

ABC is a triangle in which :

$m(\angle B) = m(\angle C)$

Find :

The perimeter of $\triangle ABC$

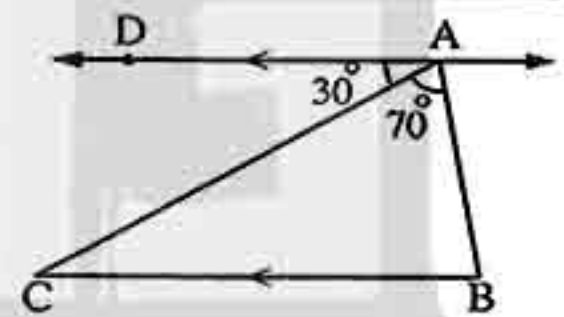


4 [a] In the opposite figure :

$\overrightarrow{AD} \parallel \overrightarrow{BC}$, $m(\angle BAC) = 70^\circ$

and $m(\angle DAC) = 30^\circ$

Prove that : $AC > BC$



- [b]** ABC is a triangle in which : $AB = 7$ cm. , $BC = 5$ cm. and $AC = 6$ cm.
Arrange the measures of its angles in an ascending order.

5 [a] In the opposite figure :

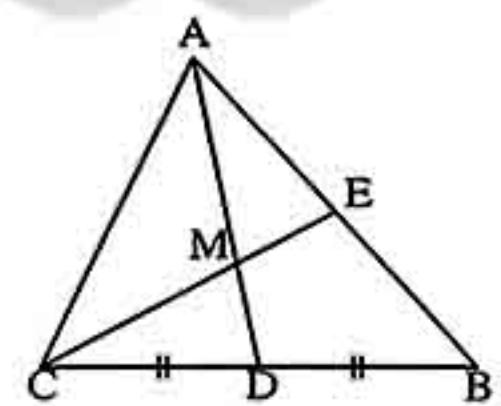
ABC is a triangle

, D is the midpoint of \overline{BC} , $M \in \overline{AD}$

, where $AM = 2 MD$

Draw \overline{CM} cuts \overline{AB} at E , if $EC = 12$ cm.

, **find :** The length of \overline{EM}



[b] In the opposite figure :

$BA = BC$

and \overline{BE} bisects $\angle CBD$

Prove that : $\overline{BE} \parallel \overline{AC}$

